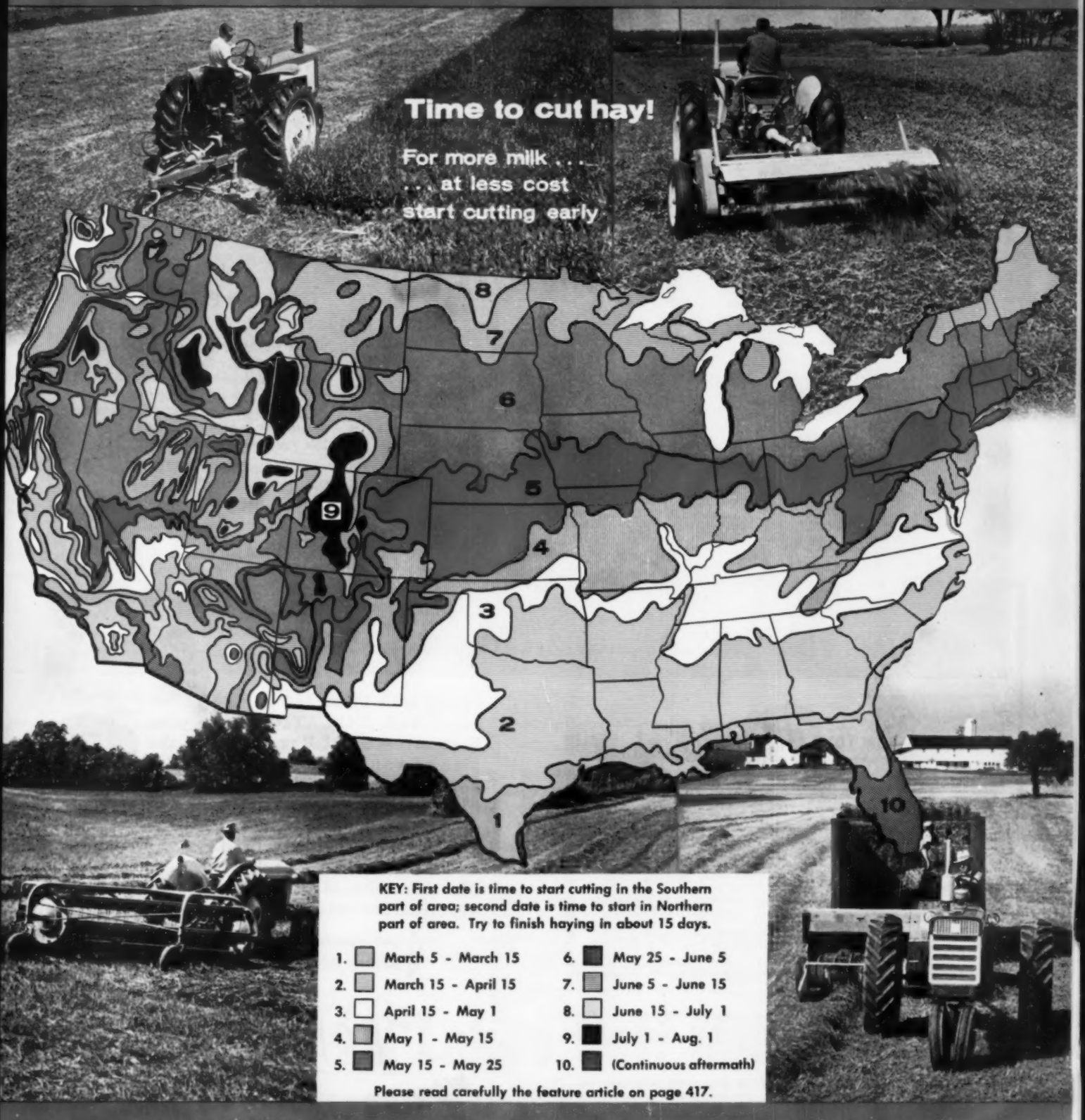
HOARD'S DAIRYMAN

APRIL 25, 1961


Time to cut hay!
For more milk . . .
. . . at less cost
start cutting early
8
7
6
5
9
4
3
2
1
10
KEY: First date is time to start cutting in the Southern part of area; second date is time to start in Northern part of area. Try to finish haying in about 15 days.
1. March 5 - March 15
2. March 15 - April 15
3. April 15 - May 1
4. May 1 - May 15
5. May 15 - May 25
6. May 25 - June 5
7. June 5 - June 15
8. June 15 - July 1
9. July 1 - Aug. 1
10. (Continuous aftermath)
Please read carefully the feature article on page 417.

THE NATIONAL DAIRY FARM MAGAZINE

BIG HERD OWNERS PRAISE MAES INFLATIONS

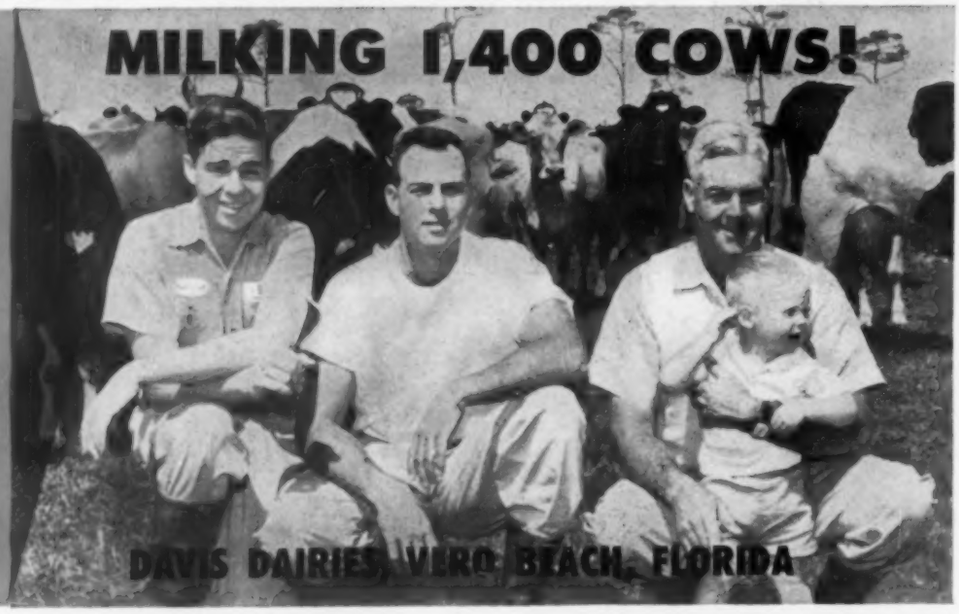
"THE BEST WE CAN BUY!" REPORTS BIG FLORIDA DAIRYMAN

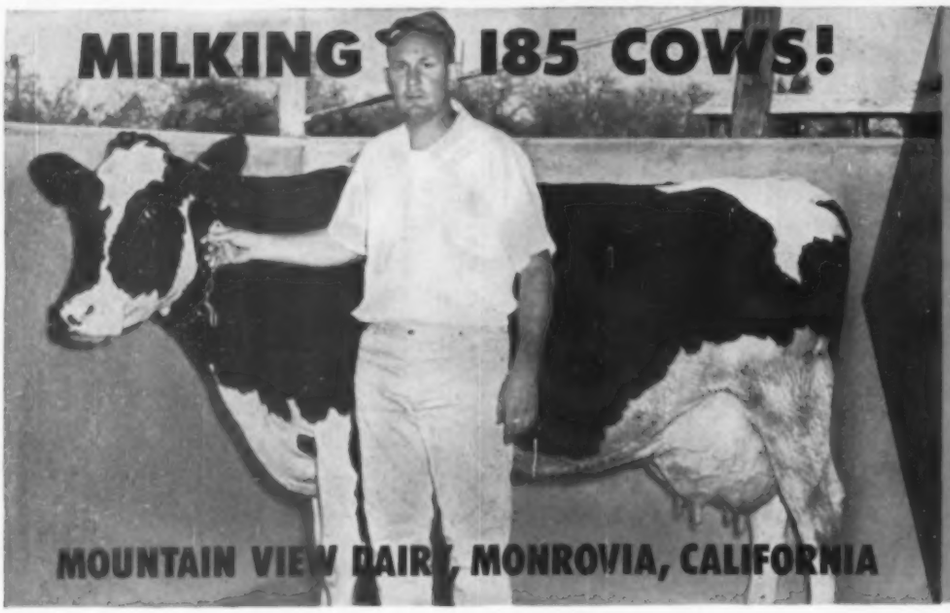
March 14, 1961

"We find that MAES inflations milk faster, cleaner, and easier than any others we have ever used. We have less 'fluttering' and 'fall off' before the cows are milked out. We truly feel that MAES inflations are the best that we can buy."

L. A. DAVIS,
Davis Dairies
Vero Beach, Florida

Pictured at far right are Mr. L. A. Davis and his grandson Mark. At Mr. Davis' right are his sons Jack and Richard. Currently they milk over 1,300 head with another 150 head dry. Davis Dairies are milking more than 20 hours per day which gives MAES inflations a real grueling workout. Davis Dairies switched to MAES inflations in 1957.





CALIFORNIA PRODUCER SAYS:

March 4, 1961

"Since changing to MAES inflations my cows milk longer than ever before. One of my many proofs is Terivue Fair Alma, an 83 good plus cow, giving more milk in her first four months of this lactation period than in her entire lactation period last year on other inflations."

CHARLES ETTENSPERGER
Mountain View Dairy
Monrovia, California

Pictured at left are Mr. Ettensperger and Terivue Fair Alma. Mr. Ettensperger milks his herd of 185 Holsteins with MAES NARROW BORE inflations.

BUY FROM YOUR **Maes** DEALER

If none near Order Direct on Coupon!

BLACK SYNTHETIC RUBBER			
Quantity		Each	Total
_____	LARGE	.86	_____
_____	MEDIUM BORE	.85	_____
_____	NARROW BORE	.85	_____
NATURAL BROWN RUBBER			
_____	LARGE	.85	_____
_____	MEDIUM BORE	.85	_____
_____	NARROW BORE	.86	_____
QUALITY MILKER SUPPLIES			
_____	Pail Cover Gaskets	.60	_____
_____	Pulsation Tubes (air hoses)	.25	_____
_____	Nylon Inflation Brush	.85	_____
Postage on orders less than $10		.50	_____
	TOTAL: $		_____

IMPORTANT!
(Fill out information below).

No. Cows _____

Breed of Cows _____

No. Surge Units _____

NAME _____

ST. (R.R.) _____

CITY _____

STATE _____

☐ Please Send FREE MASTITIS RESEARCH INFORMATION

We Pay Postage On Orders of $10 Or More—On Orders Less Than $10 Add 50¢.

Mail to: MAES MILKERS, INC., DEPT. G-41, MARSHALL, MICHIGAN

If you milk 14 or 140 or 1,440 cows . . . MAES INFLATIONS are your best investment! Regardless of the size of your herd—your cows deserve the best milking inflations. MAES INFLATIONS milk faster, cleaner and are much easier on the cows. Faster, gentler milking is SAFER MILKING hence much less Mastitis with MAES! Consult your veterinarian today.

Send coupon for FREE
MASTITIS RESEARCH INFORMATION

Maes
WORLD'S LARGEST-SELLING NARROW BORE!

Sell every drop of your milk

Switch your calves to Land O'Lakes Calf Milk Replacer after four days instead of feeding them marketable whole milk. Calf Milk Replacer contains 10% added fats for 22% more calories and no cereals. It's a milk product.

Whole milk is worth money. Sell it after the fourth day. Feed your calves Land O'Lakes Calf Milk Replacer instead. It costs about $1.75 cwt. to feed Calf Milk Replacer. That's far under the price you'll get for whole milk, so you can easily profit.

Calves cannot digest cereals efficiently during their first few weeks of life, as proved at Anoka Research farm and in tests conducted by universities across the nation. Similarly, our own children don't go on cereal foods until their stomachs can properly assimilate them. This is why there are no cereals in Land O'Lakes Calf Milk Replacer. It's a milk product.

The benefits of whole milk are in Calf Milk Replacer, because it is a milk product. We've added vitamins, trace minerals and antibiotics, with 10% added fat for 22% extra calories to help add weight to your calves and keep 'em healthy.

Better see your Land O' Lakes dealer right away. Ask him to explain how you can sell every drop of your whole milk . . . simply by replacing it with Land O'Lakes Calf Milk Replacer.

FIND YOUR DEALER HERE... HE'LL TELL YOU TO FEED NEW CALVES A MILK PRODUCT

CALF MILK REPLACER

ARIZONA: Southwest Cooperative Wholesale; United Dairymen

CALIFORNIA: Nulaid Farmers Association; San Joaquin Valley Poultry Products Association; California Farm Supply

COLORADO: Denver Milk Producers, Inc.

IDAHO: Idaho Egg Producers and Ceretana Dealers

ILLINOIS: Illinois Farm Supply Co.; Prairie Farms of Southern Illinois

IOWA: Land O'Lakes Dealers

MICHIGAN: Michigan Farm Bureau Services, Inc.

MINNESOTA: Land O'Lakes Dealers

MONTANA: Montana Flour Mills and Ceretana Dealers

NEBRASKA: Land O'Lakes Dealers

NORTH DAKOTA: Land O'Lakes Dealers

OKLAHOMA: Gold Spot Dairies; Pure Milk Producers Association of Eastern Oklahoma

OREGON: Pacific Supply Cooperative; Western Farmers Assn.

SOUTH DAKOTA: Land O'Lakes Dealers

TENNESSEE: Mid-South Milk Producers Association

TEXAS: Baron Chemical Company; Central West Texas Producers Association; Gulf Coast Federated Feed Association; Milk Producers Association of San Antonio; North Texas Producers Association; Wichita Falls Area Milk Producers Association

UTAH: Utah Poultry and Farmers Cooperative Association

WASHINGTON: Western Farmers Association

WISCONSIN: Land O'Lakes Dealers; Wisconsin Farmers Service

WYOMING: Big Horn Cooperative Marketing Association and Ceretana Dealers

SOLD AS CALF MAKER IN

ALABAMA, FLORIDA, GEORGIA: The Cotton Producers Association

DELAWARE, KENTUCKY, MARYLAND, VIRGINIA, WEST VIRGINIA: Southern States Cooperative Inc.

INDIANA: Indiana Farm Bureau Cooperative Association Inc.

NORTH CAROLINA, SOUTH CAROLINA: Farmers Cooperative Exchange Inc.

SOLD AS FELCO CALF DEVELOPER IN

IOWA: Farmers Elevator Service Company

SOLD AS CALF-NIP IN

MISSOURI: MFA Feed and Grain Div., St. Joseph, Missouri

FEED TEST 6E CERTIFIED

Land O'Lakes Calf Milk Replacer

Another fine product from the nation's leading calf nutrition research plant—Anoka Research Farms

LAND O LAKES CREAMERIES, INC., MINNEAPOLIS 13, MINN.

ADVERTISEMENT

Dairyman makes extra profit in bull calves

Mr. Luebke with one of his bull calves ready for market. This particular calf weighed 90 pounds at four days of age when started on the Vealer feeding program. At market time (8 weeks old) it weighed 240 pounds.

Mayer, Minnesota — Norville Luebke, dairy farmer near this community, has discovered an excellent source of added income in his dairy operations. Instead of selling off his bull calves at a week of age or less, he is now feeding out these calves to eight weeks, and selling them as milk-fed vealers and receiving top market prices.

Mr. Luebke, like most dairy farmers, had always felt that feeding out bull calves was impractical from the standpoint of economics. The amount of milk required to bring these calves up to 200 pounds, plus waste, just about offset the profits to be made on the net gain.

About six months ago, Mr. Luebke started a new program of feeding which in a sense was purely experimental. The program involved feeding the calves on a new product CALVITA VEALER and a regular commercial calf starter. No whole milk is fed after the colostrum period.

On a recent shipment of 12 vealers Mr. Luebke received an average of $68.86 per head and an average total feed cost of $21.00 per head. Ten calves graded choice with two grading prime.

Mr. Luebke finds that raising the bull calves adds very little extra labor cost in that they are fed at the same time that he feeds his regular herd replacement calves. And in his words, "The small amount of extra trouble is offset by the additional income that is added to my dairying operation."

He is so thoroughly sold on his feeding program that he is now buying bull calves from his neighboring dairymen. Like most young dairymen building up his herd, Mr. Luebke was hard pressed for space, but he soon convinced Mrs. Luebke that the calf raising was far more profitable than their chickens. He then remodeled the interior of a vacant chicken coop and put in several separate stalls for calves. Since each calf is in a separate pen, he can keep accurate records of feeding and each calf receives the same ration.

Calvita Vealer is an entirely new formula, different from the well-known Calvita calf formula. While the latter is formulated to produce sound bone and muscle in the heifer calf, Calvita Vealer is designed to produce a fat calf within a short period of time. The Calvita Vealer formula contains 34 ingredients, fats, minerals, vitamins, and antibiotic. The heavy milk solid content makes the product easily soluble in water and remains in suspension while the calf is feeding. Two years of testing has proved conclusively that fat veal calves can be raised without feeding a single drop of marketable milk and still get results comparable to feeding whole milk. It is very rare that a calf fed on the Calvita Vealer program will develop scours or colds. The antibiotic content (Aueromycin) of Calvita Vealer is an effective guard against these illnesses and likewise helps in feed assimilation.

Interior of remodeled chicken coop showing separate calf pens and nipple buckets used to feed the calves.

Calvita Vealer is now available at most feed stores. If your dealer does not have it, just write to: National Vitamin Products Co., 3401 Hiawatha Ave., Minneapolis, Minnesota.

HOARD'S DAIRYMAN

The National Dairy Farm Magazine

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Veterinary Editor, DR. E. A. WOELFFER

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COVER PICTURE

Most experts agree that delaying the date of first cutting of forage is one of the most costly practices on dairy farms throughout the nation.

To make Hoard's Dairyman readers more conscious of the importance of high-quality forages, we have devoted much of this issue to this entire subject.

As you would guess, Dr. Reid and our staff artist devoted many hours to the map on the cover in an effort to provide our readers with the most accurate information available on recommended cutting dates.

We strongly urge you to read Dr. Reid's title page feature, beginning on page 417, as well as the editorial on page 428.

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The receipt of Hoard's Dairyman is notification that money on subscription has been received. The label on paper will show date to which subscription is paid. Changes of address should reach us three weeks in advance. Include old address.

Unwholesome, immoral and questionable medical advertising is excluded. A sincere effort is made to carry advertising of only reliable people. We will always take it as a favor to be notified promptly whenever any advertiser's dealings with the subscribers are not in good faith or evidence a lack of business honor. Advertisers recognize the readers of Hoard's Dairyman as an up-to-date class of farmers, and we hold our columns for the patronage of only those with whom our readers can deal with profit and satisfaction.

Hoard's Dairyman is published on the 10th and 25th of each month. Advertising copy for the 10th of the month issue must be received before the 10th of the preceding month. For the 25th of the month issue, copy must be received before the 25th of the preceding month.

Washington Dairygrams

FEDERAL ORDERS TAKE LIMELIGHT HERE. SECRETARY FREEMAN APPOINTS 18-MAN COMMITTEE TO MAKE ANALYSIS AND RECOMMENDATIONS. DR. EDWIN NOURSE, FORMER HEAD OF PRESIDENT TRUMAN'S COUNCIL OF ECONOMIC ADVISERS, IS CHAIRMAN, INDICATING ADMINISTRATION IS SERIOUSLY CONCERNED.

FREEMAN'S SOLICITOR APPARENTLY AGREES WITH BENSON'S CONTENTION THAT BASE-RATING OR QUOTA PLANS ARE NOT PERMITTED IN FEDERAL ORDER MARKETS. THIRTY-FIVE REPRESENTATIVES OF DAIRY COOPERATIVES MET WITH FREEMAN REQUESTING AUTHORITY TO USE YEAR AROUND BASES TO HOLD DOWN SURPLUS PRODUCTION.

NEW MEMBERS OF DAIRY SUBCOMMITTEE IN HOUSE ARE BREEDING (KANSAS), FINDLEY (ILLINOIS), AND BEERMANN (NEBRASKA). OTHER MEMBERS ARE JOHNSON, THOMPSON, ABERNETHY, HAGEN, COAD, McINTIRE, AND QUIE.

PUBLIC "IMAGE" OF FARMER MUST BE IMPROVED, ACCORDING TO FARM LEADERS HERE. FREEMAN AND FARM AREA CONGRESSMEN WILL PICTURE FARMERS SUBSIDIZING THE CONSUMERS RATHER THAN TAXPAYERS UNDERWRITING FARMERS. HOPE TO PAVE WAY FOR FARM LEGISLATION.

OLEO OUTPUT SET NEW RECORD LAST YEAR. PER CAPITA SALES WERE 9.4 POUNDS COMPARED TO 5.8 POUNDS IN 1949 BEFORE PRO-OLEO LEGISLATION WAS PASSED. BUTTER SALES HAVE DROPPED FROM 10.5 TO 7.8 POUNDS.

FARM COST-PRICE SQUEEZE WILL BE STUDIED BY HOUSE AGRICULTURE SUBCOMMITTEE. WILL HOLD HEARINGS THROUGHOUT THE UNITED STATES.

MEXICAN FARM WORKERS WILL BE SUBJECT OF BITTER FIGHT IN CONGRESS LATER THIS YEAR. EXTENSION OF AUTHORITY TO IMPORT MEXICAN LABOR EXPIRES DECEMBER 31. LABOR AND WELFARE GROUPS WANT AMENDMENTS ON CONDITIONS OF EMPLOYMENT. FARM GROUPS WILL OPPOSE.

★ ★ ★

In YOUR next issue!

JUDGING CONTEST WINNERS . . . Be sure to see who the best judges, or the luckiest ones, were of the more than 90,000 contestants. Records were broken in every division.

COUNT 10 BEFORE EXPANDING . . . Despite the trend to larger herds, Michigan economists recommend a long-range plan, carried out step-by-step. It's far less risky.

LOW-MOISTURE SILAGE LOOKS GOOD . . . South Dakota tests show that for best results, ensile at 30 to 40 per cent moisture and make silo as airtight as possible.

AND MANY MORE . . .

Easy TO ORDER OR RENEW!

HOARD'S DAIRYMAN
Fort Atkinson, Wisconsin

☐ New
☐ Renewal

I enclose $_____ Please send me Hoard's Dairyman for _____ years.

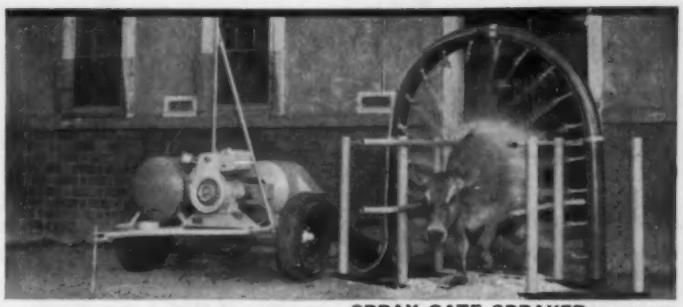
Name_____ R. F. D._____

P. O._____ State_____

SPECIALS

3 years $2.00 - 5 years $3.00 (Reg. price 1 year $1.00)

(CANADIAN: 1 Year—$2.00 — FOREIGN: 1 Year—$3.00)



New Sprayfoil* Spray Gate Sprayer sprays 25 head per minute... dairy or beef

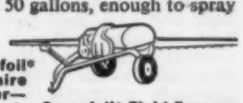
SPRAY GATE SPRAYER protects dairy and beef cattle against all insects. Patented spray heads discharge an atomized airborne mist that completely covers animals from head to tail . . . back and belly, too. Chemicals cover every hair, penetrate to the skin.

SPRAY GATE SPRAYER is economical—100% coverage and penetration with no wasteful run-off. Treat with liquids or wettable powders—no clogging, no nozzles to adjust or change. SPRAY GATE SPRAYER is trailer mounted and carries its own power supply. Treats your herd at the barn or in the field.

SPRAY GATE SPRAYER is lightweight, yet rugged—practically indestructible. Non-rusting fiberglass tank holds 50 gallons, enough to spray 200 head.

New spraying principle! Liquid mixture enters spray head through ⅛" openings—air from blower atomizes it completely, uniformly—no pressure tanks or nozzles.

Sprayfoil* Utilitaire Sprayer—compact, portable, no pressure tank.



Sprayfoil* Field Sprayer—controls insects, weeds and diseases in crop and pasture areas.

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Minneapolis 20, Minnesota
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Please send information on:
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☐ Sprayfoil* Utilitaire Sprayer
NAME_____
ADDRESS_____

Stamp out costly milk rejects caused by high bacteria counts. Do it best with Lo-Bax . . . the chlorine bactericide that effectively sanitizes cows' teats and udders, as well as all your milking utensils and machinery. Lo-Bax is easy and economical to use, dissolves quickly and rinses freely . . . provides positive chlorine protection throughout all phases of milk handling. Write for details on Lo-Bax Special and Lobax-W (with a wetting agent).

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for a low count at low cost... **LO-BAX®**

CHEMICALS DIVISION **Olin**

Opinions, Brickbats, Bouquets

These columns are open to the readers of Hoard's Dairyman for the expression of their opinion on any subject, whether radical or conservative, destructive or constructive, wise or foolish, critical or commendatory. Hoard's Dairyman assumes no responsibility for opinions expressed.

Assist with fertilizer

In my opinion the only way to curtail farm surpluses is to go back to the original farm support program and that is to just assist the farmer with lime, superphosphate, and potash. These elements stay with the soil.

Let the government stay away from the nitrogen program. Nitrogen is the biggest cause for our surplus that we have and is gone with the crop.

If the government would give the farmer just 1 cent per quart more for his milk the year around, he would be glad to do his own farming in his own way.

New York NORMAN BARLOW

P.S. I am a dairy farmer in Dutchess County. Have over 100 head of stock and have used the program from the start. I oppose the government supplying nitrogen and grass seed to us. I wish Hoard's Dairyman could find out if most farmers feel as I do.

Dodging the army

Right now I am interested in this business of overproduction and the part the farmer plays in it. You see, we live on a farm and apparently overproduced a family . . . four boys. They range in age from 17 to 23. As they grew up and registered for selective service, as is the custom in America, each one began to realize his duty to try to protect his country for the oncoming generations, as well as the one he hopes to raise a part of someday when he returns from service, God willing.

We taught them, when they were young, to get some solid convictions; then stick to them at all costs. So, a few days ago, dad and I took son number three to the train to leave for his stint in the army. After seeing two other sons leave for duty, then return on leave, then go overseas, one might think we were getting used to it but it doesn't seem to get any easier at all as each one leaves.

In our community, most of the farmers raise a few of what we call poultry, and a good many of them have raised some "chickens." Papa buys or rents a farm and sets junior up in the business of farming, when junior is scarcely out of knee britches. Junior makes his boast to other kids around, "I'm not going to have to go to the army. I'm going to get married as soon as I get out of high school and raise a bunch of kids so when I get old enough for the draft they won't take me." And, by golly, they don't.

Probably you are criticizing the fact I called them chickens. Well, that is the popular term for a coward. Now, just what is junior doing but hiding behind papa's money, his wife's apron strings, and the baby's crib while a lot of his ex-classmates are in the far parts of the globe wishing they were home with their loved ones and praying for the day, if possible, it will not be necessary for any to leave home as they have had to do.

Overproduction could be stalled to a certain degree and it wouldn't cost the government a bit more to send some of these young fellows into service for a couple of years.

Kansas M. MORGAN

"Read the best"

"You can't read 'em all — so read the best." It's a perfect slogan for Hoard's Dairyman.

I have been a subscriber for some 25 years and also subscribe to several other farm publications but Hoard's Dairyman tops them all.

Illinois J. E. MCCALL

Some of us are going

I read your "letters" column very regularly and I get considerable amusement from some of the comments. Some of the serious ones are more amusing than those written in jest.

When we are able to look back, objectively, on the 60's, I think we will find this: The farmers' problem, after all past and future remedies had been tried, remained the same — how to stretch income to cover business and living expenses. No government program is going to help more than temporarily. And any program is going to encourage "fringe" farmers to hang on and delay the one law which could solve agriculture's dilemma, the old law of supply and demand. To my knowledge, it has never been repealed.

To put it boldly, some of us are going out of business. If we intend to stay in farming, it's high time we recognize that fact and then act accordingly.

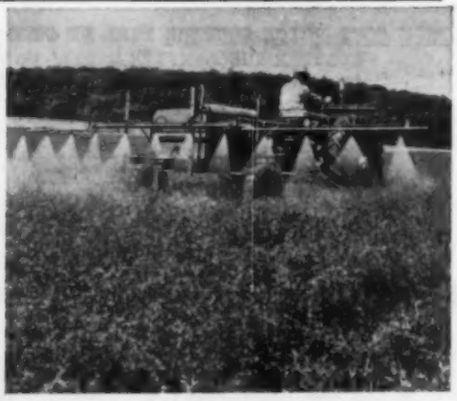
Do you want to farm badly enough to continue to make sacrifices, probably for years? Can you continue to increase efficiency and scope enough to gain on the competition? Is your family behind you 100 per cent? Are you familiar with and do you try all the new methods and crop varieties which you feel applicable to your farm? If you can't answer all of these questions "yes," you are or will be in trouble.

Here are a few tips I have collected which have been helpful:

1. Keep in mind, always, that every time you spend a dollar, you must gross at least three, probably more. Your records will tell you what your gross-to-net ratio is. No records?
2. Start keeping records today — now!
3. Use your pencil and your head. If you can, save more than interest rate by paying cash or taking delivery early.
4. Borrow money when it can save you more money.
5. A good credit rating could one day be your salvation.
6. Insurance — adequate insurance could keep you from going bankrupt. It should not be considered anything but an absolute necessity.
7. If you have money available, put it into animals rather than machinery. It isn't as impressive and glamorous but what machine will make you as much money as it costs every year, give you its own replacement, and be worth as

How you can control bugs in alfalfa and clover... increase yields

1. Stop insects before they cut forage yields, reduce protein and Vitamin A content. Just mix Du Pont "Marlate" methoxychlor right in the tank . . . and spray!



2. "Marlate" sprays easy—won't settle out, won't clog or corrode equipment. Use "Marlate" methoxychlor and you know your crop is safe from forage insects.

3. Here's the payoff: a fine, bug-free forage crop in full growth. That's why successful dairymen rely on Du Pont "Marlate" methoxychlor for top forage protection.

And remember: one rounded tablespoonful of "Marlate" 50 rubbed on a cow's back right from the bag, stops hornflies 2 to 3 weeks—leaves no residue in the milk.

In forage crops, Du Pont "Marlate" methoxychlor kills leafhoppers, alfalfa weevil larvae, spittle bugs, alfalfa caterpillars, armyworms, clover-leaf weevils, flea beetles, pea weevils, cowpea curculios . . . and others! In fact, no other insecticide is recommended by so many State Agricultural Colleges for controlling so many forage insects as is methoxychlor. Try Du Pont "Marlate" methoxychlor and you'll see why.

"Marlate" comes as an emulsion, "Marlate" 2-MR; and as wettable powders, "Marlate" 50 and Du Pont Dairy Cattle Insecticide.

On all chemicals, follow labeling instructions and warnings carefully

DU PONT
REG. U.S. PAT. OFF.
Better Things for Better Living ... through Chemistry

Marlate®
methoxychlor

much (or more) at the end of the year? A good cow can do it.

8. A good cow. Buy one registered animal in preference to two grades. Don't fail to register those heifer calves.

9. It usually pays to buy the best in machinery and supplies. Ask questions, shop around, do a little research.

10. If you are short of money, make that old machine do another season's work for less than cost of depreciation on a new machine.

11. If you really need a new machine, consider custom work. Helps pay for a machine or saves buying one.

12. Sign up with your local A. C.P. for conservation practices.

13. Test your soil once every rotation. Judge other year's fertilization needs from that.

14. Appreciate your freedom, your friends, your land, your animals, your family. It'll keep you grateful as all true farmers should be. I would say, flatly, that if you don't deeply love farming and the land, you might possibly make money but you'll never be a success as a farmer.

15. Think! Don't be afraid to try something new.

16. Read! The cheapest way to acquire knowledge is through others' experience.

Pennsylvania E. H. SELLERS

Eating comes first

This is a letter you don't like to receive and I don't like to write but eating comes before reading. I have read Hoard's for years. It is one of my guideposts. Keep up the good work.

One famous presidential appointee said, "I shall endeavor to push all mediocre and small dairymen and farmers out into industry." And so the story began, in 1954, with the drop in price of milk, also the procession of one-man-operation farms selling out to work for wages in industry. Net result — 1960 recession and probably depression, and I hope not a repetition of the 30's.

I had to sell my ranch and cattle early in 1958 or lose them. Others are doing the same. Now there is no work in industry. I am out of work, draw $38 per week, pay $20 a week on bills. That leaves $18 per week for food, clothes, rent, and utilities. I don't have money for a new subscription though I wish I did.

California JOHN JORDAN

Be proud of self-help

"It's a shame to say this, but the truth is the farming industry has become a negligible political force in this Congress, and it becomes less each year . . ."

Thus, in essence, an astute and a high-ranking politician advised his colleagues during the congressional debates on flexible farm supports. His political understanding was to be fully vindicated when, a year or two later, the 85th Congress came to vote on the dairymen's self-help plan or, as it was officially known, the dairy stabilization bill.

That bill gave the first real test to the oft-repeated promise from Washington that national legislators stood ready and willing to help agriculture with whatever reasonable laws it needed to help itself. We can scarcely forget how those committeemen, who made periodic junkets out to farm centers, urged us to do something for ourselves and to try to get away from the subsidies. The dairymen accept-

FIRST CHOICE

FIRST

Cunningham®
Hay Conditioners

First in the field and
First in sales . . . now
First to be Farm-Fitted!

Always the farmers first choice . . . now Cunningham is first to give you a choice of so many options. Years ago, Cunningham pioneered the first, practical, soundly engineered hay conditioner. Others followed, but Cunningham stayed ahead . . . well ahead in sales with over 30,000 Cunningham Hay Conditioners in the field today! Being first is one thing . . . staying first is another . . . and again, Cunningham lengthens its leadership by being first to introduce a complete line of Farm-Fitted Hay Conditioners.

When you buy a Cunningham you have 8 Farm-Fitted Models to choose from . . . you fit the machine to your hay field! If you want large wheels or small . . . 2 joint P.T.O. or 3 joint fully adjustable P.T.O. . . . steel crimping reels or rubber reels . . . or most any combination of hay conditioner features that work best for you . . . Cunningham has them! You'll find a Cunningham model that fits your farm . . . and your pocketbook. Why settle for second best . . . buy the conditioner experience builds . . . buy Cunningham.

If you think first you'll buy Cunningham!

See all 8 Models at your Dealers now!

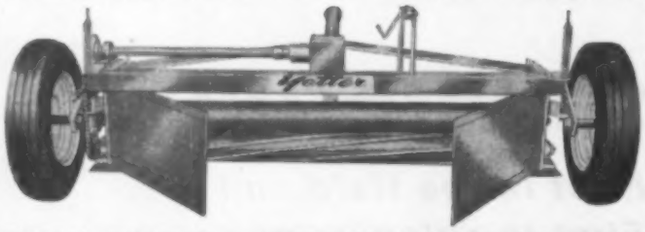
Cunningham®
Hay Conditioners

Corner of Rose & Gillette Streets, LaCrosse 23, Wis.

Now You Can Afford the MOST WANTED HAY CONDITIONER AVAILABLE

Look ONLY $495.00
F.O.B. FACTORY, LESS TIRES

NEW YETTER HAY CONDITIONER



FULLY TESTED • PERFORMANCE PROVEN

DON'T LET THE PRICE FOOL YOU on this rugged built conditioner. It has been tested on all kinds of hay and PROVEN to do an outstanding job. It's a crimper-crusher that conditions hay in the most practical manner . . . combining all the good features you've wanted in a hay conditioner . . . Built for years of satisfactory service.

- WILL NOT PICK UP ROCKS
- HEAVY, RUGGED CONSTRUCTION THROUGHOUT
- ALL THE GOOD FEATURES YOU'VE WANTED
- PRICED SO LOW YOU CAN'T AFFORD TO RISK HAYING WITHOUT IT

Yetter ROCKET AGE ENGINEERING APPLIED to FARMING ENGINEERING

60" ROTARY CUTTER
$324.00
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—less tires

5-TON WAGON GEAR
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Only through Yetter Rocket Age Engineering Applied to Farming can you get such outstanding machinery, and now at such LOW PRICES.

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YETTER MFG. CO., Inc.
571 Main Street
COLCHESTER, ILLINOIS

ed the challenge and came up with the dairy stabilization bill.

This proposal met the long-standing specifications. It was planned and engineered by farm interests. Farmers proposed to take full responsibility for administration. Win, lose, or draw the self-help bill would make no demands on the federal treasury beyond the cost of a referendum. Nor did it rest with that accomplishment. It incorporated the most thoroughgoing principles and policies that were ever applied to a farm program.

First of all, it put farmers in the common-sense role of directing and managing their own business. They would be tackling head-on their age-old enemy of supply-burdened markets and would be doing it without expecting a handout.

The provisions of the bill exhibited a high degree of business and economic astuteness. They took cognizance of and dealt with the factor of oversupply, which has always operated to doom agriculturists to a buyers' market and the consequent unstable, unsatisfactory level of prices.

Here was a proposal for farmers to protect and stabilize their best outlet, their home market. They would make sure fair prices were not smothered under an uncontrolled load of surpluses. The disposition of excess supplies would rest in producer hands. With that kind of positive protection, domestic supply and demand would be co-ordinated and a fair level of prices maintained.

The businesslike acumen went farther. This measure ignored the bait of hoped-for sales booms. Up to this time, rural sentiment had hardly challenged the wishful thinking that an "exploding" population or a revolutionary research strike would zoom demand up to supply levels. Such unrealistic attitudes have served to keep production-eager farmers so busy studying new farm techniques that they have practically left market management out of their calculations.

But in the new farmer self-help approach, attention to markets and market protection is paramount. As its first goal, it would insure that the full potential of the good market presently existing is enjoyed, then it would allot time for producers to dream about miracles, or to develop sales campaigns.

Despite its many strong features, House Bill #10043 failed of enactment. Yet it still stands as a landmark to agricultural effort. It was the first measure presented to Congress, fully farm-fashioned, fully self-reliant, and businesslike. It may well serve as the pilot effort, anticipating a comprehensive marketing program for all agriculture.

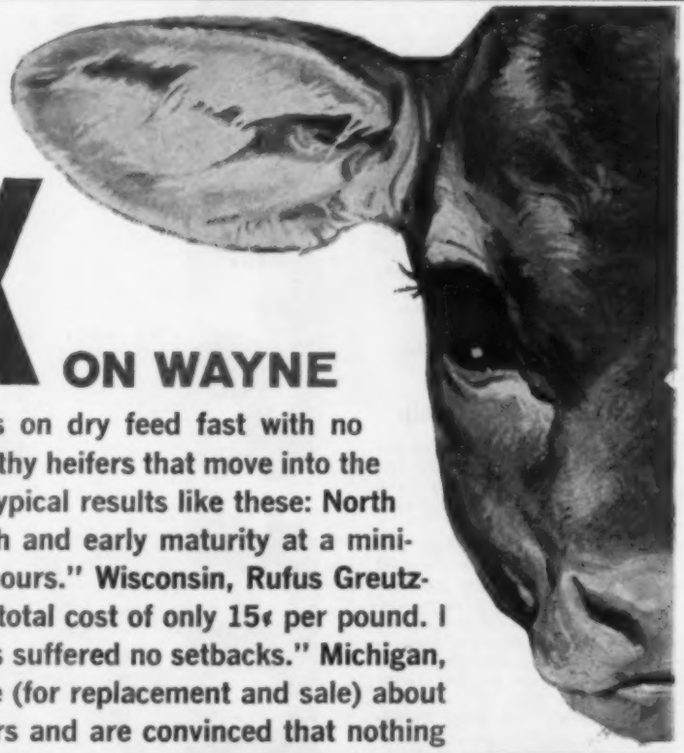
Someday, undoubtedly, the authors will be recognized as the architects of agricultural progress.

Let there be no misconceptions. For all of its strong points, not even its staunchest friends could claim the dairy bill was the ultimate in farm programs. It had its "bugs" and drawbacks. It was certainly good enough to merit a trial. But had it been granted an enabling act and had it been approved by referendum, it would unquestionably have required revision.

Nevertheless, regardless of its imperfections—and its cool reception—every farmer can be proud of the cogent and cooperative effort that brought forth the dairy self-help plan. They can accept its shortcomings and know that it stands out as the most forward-looking, and best conceived proposal for a farm program to be offered to American agriculture.

New York C. B. FRANKLIN

YOU CAN BANK ON WAYNE



Here's why. The Wayne Calf Program puts calves on dry feed fast with no growth lag after weaning . . . develops sleek, growthy heifers that move into the production line earlier. Wayne dairymen bank on typical results like these: North Carolina, Philip P. Ragan: "I get wonderful growth and early maturity at a minimum of cost. By using Calfnip I am able to control scours." Wisconsin, Rufus Greutzmacher: "I got 259 lbs. of gain on two calves for a total cost of only 15¢ per pound. I especially like the Wayne Way because these calves suffered no setbacks." Michigan, Gene Hepker: "At the George Bailey Farm we raise (for replacement and sale) about 25 calves a year. We have used Wayne for 3-4 years and are convinced that nothing can equal the Wayne Calf Feeding Program." You, too, can bank on Wayne dependability because continuing research assures the newest, proven developments in animal nutrition at all times. You reap the benefits when you feed for profitable calf production with a Wayne More for Your Money

CALF PROGRAM

WAYNE FEEDS

ALLIED MILLS, INC. Builders of Tomorrow's Feeds...Today!

Executive Offices: Chicago, Ill. • Mills at: Guntersville, Ala. • Gainesville, Ga. • Peoria, Ill. • East St. Louis, Ill. • Fort Wayne, Ind. • Mason City, Ia. • Omaha, Neb. • Buffalo, N.Y. • Everson, Pa. • Memphis, Tenn. • Fort Worth, Tex. • Portsmouth, Va.

Thumbs put in teat cup of another milker and a De Laval. One at left is red and sore after 2 minutes; other thumb from a De Laval is not sore, shows little redness.

FIGHT MASTITIS WITH A MILKER?

Yes! Gentle De Laval milking can help you do it!

The De Laval method of milking is far more gentle than any other method... so gentle it can actually help you prevent mastitis.

Other milkers turn a thumb red and sore —and they have the same effect on your cows' more sensitive teats and udder tissues. Rough milking can also make teats hard and lumpy, can cause congestion in teat canals and open the way to all kinds of udder troubles.

Make the thumb test. Feel the rough pounding and pulling of other milkers *just once*, and you'll never again feel safe putting anything but a De Laval on your cows. Only De Laval can give you gentle milking because only De Laval has *narrow-bore liners, absolutely uniform pulsation and rapid-recovery vacuum.*

Start using a *gentle* De Laval milker soon. In no time you'll notice your herd will have far better udder health, far less mastitis. But prove it for yourself *before you buy.* Ask your De Laval Dealer to bring you a suspended or pail-type unit for a FREE 7-DAY TRIAL. Try the thumb test with your present milker and a De Laval. Then milk part of your herd with the De Laval. *You'll see a big difference in less than 7 days.* We rest our case on your results! The De Laval Separator Co., Poughkeepsie, N. Y.; 5724 N. Pulaski, Chicago 46, Ill.; 201 E. Millbrae Ave., Millbrae, Cal.

WHY DE LAVAL CAN HELP PREVENT MASTITIS

Wide-bore liners can cause cows' teats to "balloon". But De Laval narrow-bores fit snug, reduce impact when liners collapse, minimizing danger of udder injury.

De Laval's magnetic pulsation gives you **absolutely** uniform milking, no matter who milks. There's never a variation, so your cows are milked exactly the same every time.

De Laval cuts vacuum drop-offs that cause slow, erratic milking. Our rotary action vacuum pump assures quickest possible vacuum recovery for fast, uniform milking.

10% down, up to 4 years to pay on the Suspended or Pail-Type Milker.

DE LAVAL

Condemned without a hearing . . .

by Percy W. Dake

. . . that is the position of dairy products in the heart disease controversy. The author traces history of milk and its contribution to civilization.

In rebuttal to the American Heart Association statement on animal fats, the author presented a stimulating paper at the recent Illinois Agricultural Industries Forum. It is presented here in abstracted form. Every dairy farmer should read it to gain a deeper appreciation of the role of milk in human history and advancing civilization. Mr. Dake is now president of Saratoga Dairy, Saratoga Springs, N.Y. Previously he was president of a well-known pharmaceutical manufacturing concern.

—The Editors

TWENTY thousand generations ago, a pulsating, throbbing blob of protoplasm lay on the shore of an ancient sea. By her side a baby protoplasm was struggling for survival. With that great maternal solicitude (which may have been the source of our very existence), and with the inordinate determination that her newborn offspring would become the progenitor of the greatest beings on the face of the earth, they snuggled close together.

The membranes of their bodies wore thin, and a transfusion of the mother's fluids to her offspring took place. The infant took on new life, and the mother saw it was good.

And so began the first incipient nipple and the first nursing babe.

During succeeding generations, vast improvements took place in the physical nature of these methods of nursing. True, the first lacteal fluid was little more than sea water, but the mother's great urge to improve her offspring caused her, by some mysterious processes of nature, to add various elements, such as proteins, minerals, fats, vitamins, hormones and, yes, even cholesterol itself, and all the other elements that have made milk nature's most perfect food.

These ancient mothers made another important discovery, which was that, as their own supply of milk dwindled, they could supplement and substitute the milk of other mammals.

Those prehistoric mothers must have been astonished at the accelerated rate of physical development of their offspring. Because of their superior mental and physical development, they went forth, conquered the saber-toothed tiger and the mastodon, and became the acknowledged leaders of the known world.

It was the milk-fed tribes of eastern Asia who conquered and dominated the people of Europe and, later, their milk-fed descendants easily conquered and dominated the corn-fed inhabitants of Mexico, and Central and South America.

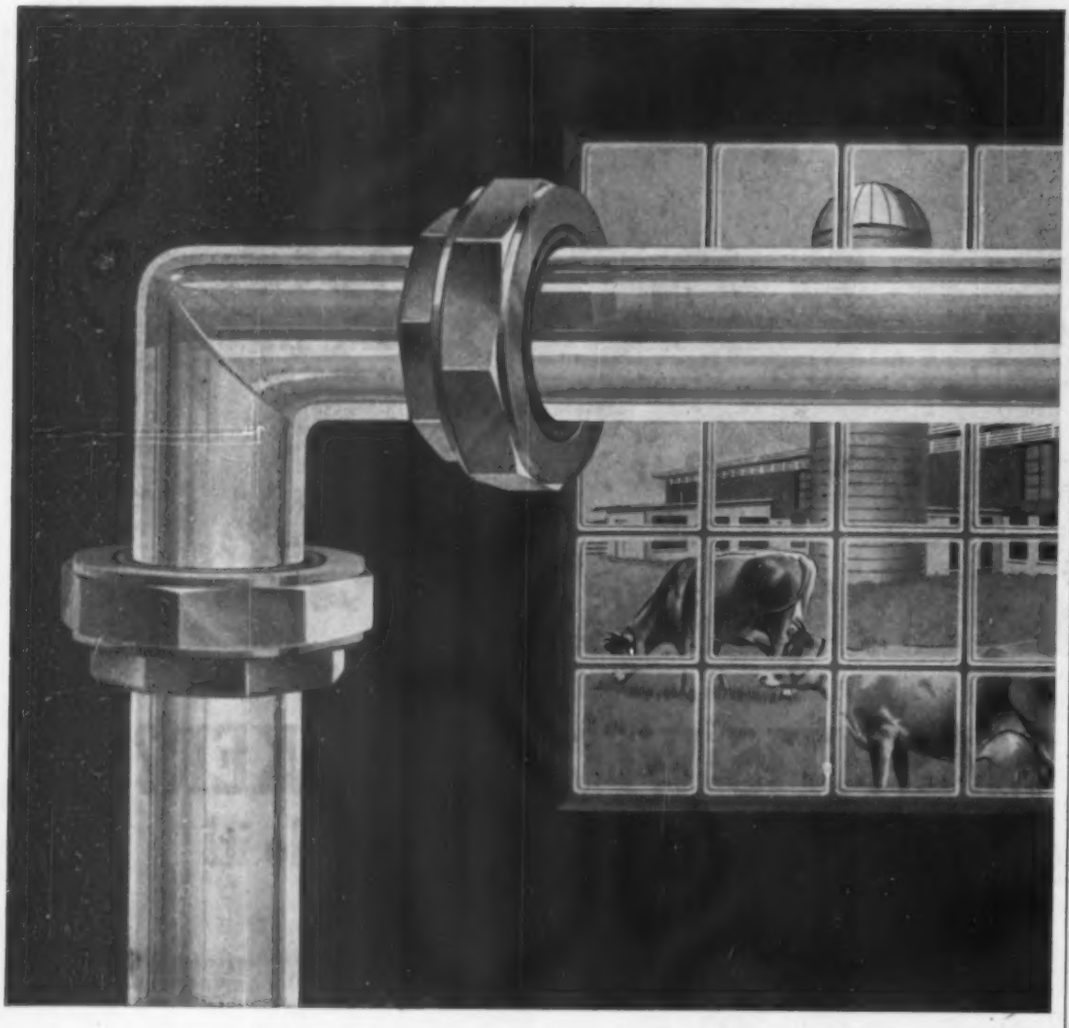
Our Plymouth fathers had no sooner imported cows and milk goats from Europe than they began the domination of the Indian tribes along the Atlantic seaboard, which they accomplished in practically a single generation. Today, the whole world acknowledges the leadership of the milk-fed nations.

Our own military leaders, headed by General Eisenhower, expressed concern at the widespread deterioration in health of new recruits in our military forces, where the increase in rate of rejections appeared to parallel the decrease in per capita consumption of dairy products. They sought ways and means to increase the consumption of dairy products in the full knowledge that it was the most effective way to improve and maintain the health and fighting vigor of their forces.

Our federal government, by its medically supported program of adding milk to school lunches, has aided in distributing over 2,400 million portions of milk annually. I never heard anything but approbation from medical, dietary, or civil authorities for this program to improve mental alertness and physical well-being of our school children.

Report of "frustration" . . .

In 1960 a minority group of the medical profession, the American Heart Association, appointed a committee which, in its frustration to find a satisfactory solution to the complex and baffling problem of cholesterol, has seen fit to charge



KIMAX GLASS PIPE puts modern milking systems another step ahead

You know the advantages of modern milking systems... faster, more sanitary, more efficient. Add Kimax glass pipe and the job is even cleaner and easier to take care of.

Kimax glass pipe lines are strong, permit visual inspection as quick as the eye, and their smooth bore prevents deposit of tiny, hard-to-flush particles. Lines can be cleaned in place, too, and when necessary, disassembly is rapid and simple. And Kimax is the amazingly tough glass that resists hard knocks.

Specify Kimax glass pipe in your milking system. It's available from these milking systems manufacturers:

Chore Boy Manufacturing Company
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Rite-Way Dairy Farm Equipment Corporation
Universal Milking Machine Division

KIMAX GLASS PIPE
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one of nature's most widely used and ancient foods — milk. Milk, which has stood the test of time for thousands of generations, is to be condemned without a hearing, on little more evidence than suspicion, by this small group of the medical profession.

I am completely baffled as to why this committee should choose to ignore the sentiments of a large segment of the medical profession that it is the sedentary habits of this modern age — wherein our people are wearing out the seat of their pants faster than the soles of their shoes — that are the basic cause of heart disease and other circulatory problems.

Let me hasten to assure you that the unproved findings of this committee have by no means been universally accepted by the medical profession or the world's dietitians. In fact, some of them have raised the obvious question about the possible debilitating effect of suddenly depriving a large portion of the human race of its hereditary food. Again, they say the proposed cure may be worse than the disease.

Since when should the health of 180 million Americans be imperiled to permit the possible improvement of that portion of our population who are suspected of being afflicted with arteriosclerosis?

Right to defend . . .

Let us grant the right to members of the American Heart Association to experiment with that segment by dietary or other means. But let us, as dairymen, strongly assert our right to defend the national health. And let us refuse to permit any impulsive interference with the high standards of excellence achieved by the American people through the ages, and especially at this moment in our history when hordes of milk-fed Russians are threatening to bury us.

The recent cranberry fiasco is too fresh in our memory to permit any spotlight-seeking scientist, of whatever rating, to stampede us as a nation into irrational, ill-considered situations or crises that might imperil our very existence.

Let us, as dairymen, go forth with renewed confidence in our industry as furnishing the world's finest of foods. Let us admit our shortcomings and faults and cease sweeping our problems under the rug and accepting excuses for reasons. Let us seek help wherever it is available to improve milk and its products in both flavor and keeping quality.

Let us, by present and projective improvements, cause the consuming public to eagerly reach for a second helping of these improved dairy products and by so doing improve the health of our nation, restore prosperity to our industry, and eliminate a surplus problem that has been such a burden to ourselves, our industry, and our government.

"Of course, my credit's no good! That's why I'm here!"

"Our DARI-KOOL Delivers Better Quality Milk With Less Effort and at a Top Price —

We Are Happy We Bought a DARI-KOOL!"

writes MR. OWEN CRIST Des Moines, Iowa

"After careful consideration, I found that the large majority of bulk tank purchasers were choosing Dari-Kool. I checked the manufacturer, the distributor, the service available, the construction, ease of cleaning, the ice-bank feature which will hold our product in perfect shape even 24 hours after a power failure, and the cost. I checked for the size that most similar dairy men in this area were buying. I bought a 400 gallon Dari-Kool. It was perfectly installed as per agreement. We have used it about one year and have had no service calls.

With Darj-Kool, we have delivered a better quality milk, with less effort, and received top price. We believe we have the best — we are proud of it. For resale, just in case, I have a standard make, standard size as used by most good milk producers. What more could we want?

We are happy we bought Dari-Kool!"

DARI-KOOL® BULK MILK COOLERS

America's Fastest Cooling Bulk Tanks

DARI-KOOL VACUUM TANKS

DARI-KOOL ATMOSPHERIC BULK TANKS

EVERY DAIRYMAN SHOULD READ THIS FOLDER —

DAIRY EQUIPMENT CO., Dept. 53, Madison, Wisconsin

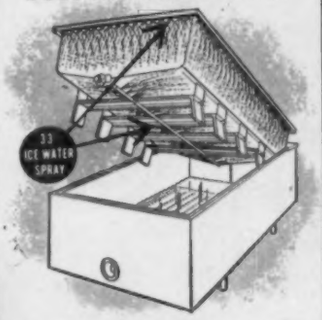
Please send new folder "How To Select Your New Bulk Milk Cooler" with a comparison of direct-expansion and DARI-KOOL ice-bank coolers.

NAME.....

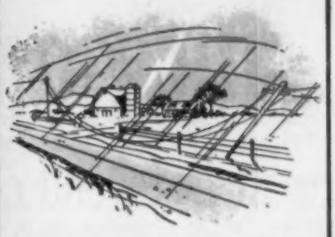
TOWN.....RFD.....

COUNTY.....STATE.....

HERE'S WHY A DARI-KOOL COOLS MILK FASTER — DOES NOT FREEZE MILK



33° ice-water is pressure-sprayed over all 4 sides and the entire bottom of the milk tank. Milk heat is removed faster than is possible with any other cooler or method.



DARI-KOOL PROTECTS MILK DURING EMERGENCIES

In the event of an electric power or compressor failure the large reserve ice-bank will protect you from the loss of a tank of milk. This is valuable insurance.

FOR LESS THAN 2¢

A DARI-KOOL WILL COOL 100 LBS. OF MILK TO 38° F — OR BELOW —

Tests prove that a Dari-Kool operating under full load and normal milkhouse conditions will cool 100 lbs. of milk to 38° F, or below, with less than 1 KW of electricity—on a yearly average. Based on 2¢ per KW-hr.

FIRESTONE FLEX-FORTIFIED SIDEWALLS

built to end costly cracks and breaks

Ordinary tractor tires give you the same rubber in the sidewalls as in the tread. Firestone gives you a rubber specially compounded to survive the constant flexing sidewalls must take. Firestone puts more spring into sidewall rubber, gives it the extra comeback and toughness to resist cracking, breaking, weakening and aging. Firestone sidewalls are Flex-Fortified for extra strength and service . . . as proved in normal use and on-the-farm tests! And look what *else* Firestone (and *only* Firestone) gives you: new longer-wearing Firestone Rubber-XF tread rubber; tough Shock-Fortified cord—and the superior pulling action of Firestone Powerized traction bars. One more thing: Firestone loans you *brand-new* tractor tires to use when yours go in for retreading or repairs. Buy farm-proved Firestones now—at your Firestone Dealer, Store or service station. *Always a year to pay!*

Tune in Eyewitness to History every Friday evening, CBS Television Network

Firestone

FIRST IN FARM TIRE NEEDS

Copyright 1961, The Firestone Tire & Rubber Company

M. H. Lee, manager of Tappen Dairy Farms, Brandon, S. D., *says: "Firestones last longer and are a lot less trouble than other tires. It's strictly Firestones for me. Get wonderful service, too, from Bob Davis Firestone in Sioux Falls."*

CUT EARLY for MORE MILK

Other advantages of early cut hay

- **More energy, greater feeding value**
- **Cows will eat more of the low cost feed**
- **Less waste in the manger**
- **You have a much better second crop**

by J. Thomas Reid

DAIRYMEN, the hay and grass silage harvesting season is here . . . or soon will be! If your farm is in the South, along the gulf coast (in Zones 1 or 2), you should be finished with the first cutting of forage made up of such perennials as alfalfa, clovers, birdsfoot trefoil, timothy, orchard grass, and brome grass.

Now look at the map on the cover of this issue. If you live in the lower half of Zone 3, you should be in the midst of harvesting these crops for the first time this season. On the other hand, if your forage crop is Bermuda, Dallis, Bahia, Johnson, or Pangola grass, you should be prepared to make the first harvest 35 to 40 days after the dates for your zone shown on the map.

Those of you located in the southern part of Zone 4 should have your machinery ready to go by May 1; in the northern part of Zone 4, harvesting should begin by May 15. And, so on, up and across the country as shown.

If you are accustomed to start cutting when most dairymen do, the recommended date is considerably earlier than you now start. But, as a result, you have been losing the milk-making benefits of early-cut forage. Although some of these benefits will be discussed later in this article, the most important one is that **early-cut forage will make money for you.**

Though some of your tax money probably has been used to help your state experiment station determine the effects of cutting time upon forage quality (its milk-making ability), chances are that you are one of the four out of every five dairymen who is not using this information. Most of you are still cutting from two to six weeks too late.

Because of the dollars and cents benefits of early harvesting and the relatively few dairymen who are taking advantage of this practice, Hoard's Dairyman has devoted much of this issue to forage quality. Many specialists in agronomy, nutrition, and dairying from almost all states have contributed, in response to a questionnaire sent to them, much of the information used in this article.

In the large dairy districts made up of the northeastern, midwestern, and north central states from 50 to 80 per cent of the hay and grass silage fed to dairy cattle is made from the first growth. As a consequence, this article deals mainly with the first cutting of the perennials commonly grown in these regions.

On the map on the cover page you can find the date at which forage harvesting should begin in your area. The map and recommendations are based mainly on the results of research dealing with the effect of cutting date on the nutritive value and yield of forages, obtained by a number of experiment stations.

These figures were extended to other states by using the **average** date of last killing frost in the spring as the starting point of forage growth, in combination with the cutting dates recommended by specialists. Thus, **on the average,** first-growth forages cut on the recommended date for any region will have about the same feeding value as those cut at the suggested time in any other region.

Since the map is zoned on the basis of the nutritive value and yield of forages and certain agronomic considerations, it can serve as a guide under practical conditions. Though some specialists still recommend the cutting of forages at various stages of plant growth, cutting the first growth according to the calendar has definite advantages.

Since the dairy-farming business is a series of specialized, complex, and irregular management problems, controlled to a great degree by biological laws, any thing or event that can be anticipated to occur at a definite time will relieve some of your management pressure. Thus, cutting forage at the recommended date helps to **simplify planning and management.**

In using the map, you will want to consider the following points:

1. The cutting dates listed apply only to the first cutting of the common varieties of such perennials as alfalfa, timothy, clovers, brome grass, orchard grass, birdsfoot trefoil, and fescues.

2. The first cutting dates for Bermuda, Dallis, Bahia, Pangola, and Johnson grass recommended by specialists in the southern states, where these plants are grown, are 35 to 40 days later than the dates that are listed on the map.

3. The dates listed represent the **first day** of the harvest period.

4. Most of the specialists contacted in the survey recommended that the first cutting be **completed within 15 days** after the recommended beginning date.

5. In general, the first date for each zone (given in the key on the cover) applies to the southernmost section of the region and the second date listed for each zone applies to the northernmost sector.

6. In the western quarter of the country where altitudes and climatic conditions vary greatly within very short distances, the cutting dates recommended are expected to be less accurate than those for the remainder of the country.

Though great variations in elevation can affect the proper time of cutting, variations sufficient to cause considerable difference in the time that the forage growth begins in the spring do not necessarily mean that the cutting times should be greatly different.

For example, in one *(Turn to page 436)*

The author is professor of animal husbandry at Cornell University, New York. He was the author of "You can save $125 per month," the lead feature in Hoard's Dairyman June 10, 1955. This was the first article to report to dairymen the dramatic findings of his research. Since then the gospel of early cutting has spread throughout the land and to foreign countries. This article and the map on the cover of this issue is the first attempt to map the nation as a guide to timely, profitable first cutting of the forage crop.

Farm Flashes . . . .

Seasonal reminders and research notes for the dairyman

FERTILIZER IS A GOOD BUY

Can you afford to fertilize in 1961 when the things you sell keep going down? You bet you can! A recent U. S. Department of

Agriculture study shows that fertilizer is one of the three "best buys" for farmers.

According to a North Dakota State soils specialist, the report states that every dollar's worth of fertilizer the average farmer used on crops and pasture returned an average of $2.93 per acre last year.

This compares favorably with field trials during the last three years in several North Dakota counties. Applications of fertilizer on wheat sown on fallow returned, on the average, $3.34 for each dollar invested. For wheat sown on non-fallow, the returns ranged from $2 to $2.70 per dollar invested, depending on the amount of stored soil moisture.

Why does fertilizer continue to be one of the farmer's best investments? Because the price stays down while other costs of farming have increased.

For example, farm wage rates have gone up more than 300 per cent in the past 40 years, real estate has risen 140 per cent, and machinery is up 106 per cent. During the same period, fertilizer prices have increased only 55 per cent. That probably is the biggest reason why fertilizer is so effective at whittling down that unit cost of production.

HARVEST IN BOOT STAGE

Early harvesting has proved to be extremely important for producing highly nutritious orchard grass hay, according to Penn State animal nutritionists.

Samples of orchard grass, which had received various levels of nitrogen fertilization, were evaluated in digestion trials with sheep. The nutritive value was unaffected except that a very slight benefit was obtained from the grass fertilized at the rate of 300 pounds of nitrogen per acre.

The main effect of nitrogen was that of increasing the total yield of forage. Though the crude protein content of the hay was increased with each increase in level of nitrogen fertilization, the crude fiber, gross energy, fat or ash content was not appreciably changed. Neither were there any differences between the digestibility of the dry matter or energy of the hays fertilized with either 50, 100, or 200 pounds of nitrogen per acre. No toxic effects were noticed when any of the hays were fed to sheep for a 21-day period.

Excellent-quality hay resulted only when the orchard grass was harvested early and it declined sharply when harvesting was delayed. **The importance of cutting orchard grass at the boot stage of maturity rather than after the plants are headed out was clearly shown by the hay grown with 100 pounds of nitrogen per acre. It contained 17.9 per cent protein when harvested early but dropped to 10.6 per cent when harvested 16 days later.** The crude fiber content increased from 25.8 per cent to 32.2 per cent, while the digestibility of the dry matter was reduced from 69.7 per cent to 55.2 per cent.

FIND ZINC DEFICIENCY IN DAIRY CALVES

Research at the University of Georgia has demonstrated for the first time that a deficiency of zinc in the ration of dairy calves can seriously affect their health.

While it has been well established that zinc is a required nutrient for swine, poultry, and other animals, zinc deficiency in a ruminating animal has not previously been reported.

In the test, supervised by Dr. W. J. Miller, two Holstein calves were fed a low-zinc, purified diet and tap water containing 2.7 and less than 0.1 parts per million of zinc, respectively. The calves were fed under controlled conditions which prevented their receiving additional zinc from such sources as galvanized pails and water pipes.

After 8½ weeks on the low-zinc diet, the calves developed such symptoms as:

1. Slightly red and inflamed nose and mouth.
2. Soft swelling of the rear feet in front of fetlock.
3. Breaks in the skin on the rear legs.
4. Dull and listless appearance.

At the end of 11 weeks, in addition to these symptoms which became more pronounced, the calves developed:

1. A stiff gait.
2. Patches of bare skin.
3. Bleeding around the teeth and ulcers of the dental pad.
4. Dilation of the pupils and apparent impairment of vision.

In appearance, the calves looked much like those having X-disease. Both have since died.

In borderline cases of zinc deficiency, Dr. Miller states that the first effect would be reduced growth of the animals. Studies are underway now to determine whether or not zinc deficiency is a practical problem on farms.

In the test, two comparable calves which received the same purified diet supplemented with 43 parts per million of zinc did not develop any symptoms similar to those which received the low-zinc diet.

WHAT DOES TRACTOR COST?

While the cost of tractor use varies from farm to farm, a study on the cost of operating tractors has been reported from Arkansas.

It shows that a 2- to 3-plow tractor costs around $770 a year and $1.33 an hour of use.

A 3- to 4-plow tractor costs between $1,200 and $1,300 a year and $1.46 to $1.63 an hour of use.

A 4- to 5-plow tractor costs in the neighborhood of $1,300 a year and $2.25 an hour of operation.

The study took into account fixed costs, including depreciation, taxes, shelter, fuel storage, insurance and interest charges — as well as variable costs, including maintenance, lubricants, fuel, and repairs.

SUDAN GRASS MEETS SUMMER SLUMP

Sudan grass not only has a high-carrying capacity, but it makes good growth during hot weather and cows relish it.

Usually, Sudan grass is ready to graze in about 4 to 6 weeks after planting. A Rutgers crops specialist recommends planting 1 acre for every 4 animals. Also, he suggests planting on 2 or more dates, staggered by 7 to 10 days so that fields will not all be ready for grazing at the same time.

He further recommends that it be drilled in a well-prepared seedbed at a depth of an inch or inch and a half, at the rate of 25 to 35 pounds per acre. Piper is frequently recommended because it's low in prussic acid.

Because it grows so fast and produces so well, Sudan needs plenty of fertilizer for best results. In New Jersey, 500 pounds of 10-10-10 an acre is recommended at planting time. After the first grazing, a top-dressing with 40 to 50 pounds of nitrogen will add valuable days of excellent grazing.

Be sure to keep cows off Sudan until it is 18 inches tall. Young, short growth may poison the cows. It is also recommended that it not be grazed shorter than 4 to 6 inches.

PRECAUTIONS WHEN FILLING SILO

Carelessness in and around the silo can be dangerous. Much of this danger can be avoided by adequate ventilation of the silo and chute. A Rutgers University dairy specialist warns that the small space around the top of the silo, between the roof and the wall, usually does not provide enough ventilation.

Here are a few safety precautions:

1. Ventilate your silo. If you do not have a vent in the silo roof, install a dormer window or opening above the chute.
2. Keep ventilators open during filling.
3. Leave a roof section open for two weeks after filling. Close when silo is sealed.
4. Start the blower each day at least 10 minutes before entering the silo and keep it running whenever anyone is inside.
5. There is possible danger from yellowish-brown nitrogen dioxide fumes when stunted corn is ensiled, particularly if the corn has been heavily fertilized. The fumes disappear rapidly when air is circulated by the blower.

6. When grass silage is being treated with dry chemicals, particularly bisulfite, wear goggles and dust mask in silo during filling.
7. Close and seal silo doors only as filling progresses. Keep the doors open as near to the level of the silage as possible.
8. Constantly examine rungs of silo ladders. They can become slippery and dangerous. High moisture can rust and weaken them.

MOW-DRIED HAY is both greener and leafier than field-dried hay; it has 16 to 19 per cent protein. Pitching down this hay is like feeding lush pasture in winter. This drier uses lateral and vertical flues.

Don't overlook mow drying

by H. D. Bruhn

Crushers cut field drying time, but to reduce the hazard of hay being rained on, it is essential to finish drying under cover.

TEN thousand bales is a lot of hay. It represents a year's production from a sizeable area and many man hours of labor and machinery operation. If it is good hay, it will feed 50 to 75 cows for a season. If it is poor, it makes bedding for a longer time.

Last summer in one storage shed, I saw 10,000 bales of hay heating and turning what might have been good feed into what is poor bedding just because it was baled too wet. It cost just as much to grow, cut, and bale this crop as it would have to produce No. 1 hay.

The breakdown in the system was in the final drying, getting out the last little bit of excess moisture. Hay that is put in storage at 20 per cent moisture will not "sweat"; hay at 35 per cent moisture will sweat and heat. Instead of being green it will become yellow or grey. If the pile is large enough, it may get brown or black.

Poor hay expensive . . .

Sometimes cows eat a fair amount of this off-color hay, and sometimes they will eat very little of it. In either case, the feeding value is down and the only way to keep up milk production is to supplement with expensive concentrates.

Good hay is the cheapest dairy cow feed you can get, but poor hay is expensive.

How did these 10,000 bales get baled too wet? Whose fault was it? It was nobody's fault. The farmer did the best he could. There just were not enough good drying days in succession last summer. It takes about a day of average field drying to get the hay moisture down from 35 to 20 per cent.

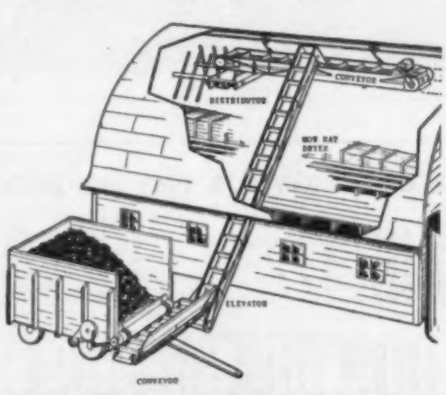
With a crusher and one good drying day, you can cut and crush early in the forenoon and put on a drier by the middle of the afternoon. If the drying weather is only average, cut and crush one day and put it on a drier the next. The crusher saves the better part of a day by speeding up the first part of the drying, and the last part of the drying is done under cover.

For the farmer who owns a chopper, mow drying is distinctly in order. Developments over the past years are making driers even more practical. The mow drying of chopped hay not only lets you get the hay out of the field earlier, but saves many leaves which might be lost in harvesting completely field-cured hay.

Larger motors possible . . .

New conveyors handle chopped hay gently and distribute it in the mow for proper drying. More rural electric lines have increased capacity and allow larger motors to give driers greater capacity. Of the approximately 6,000 driers in Wisconsin, a high percentage are powered by 7½-horsepower motors, and there are increasing numbers of 10, 15, and even 25 horsepower motors on driers.

Many electric lines will allow the use of a motor one size larger than the normal maximum size, if the motor is of the special low-starting-current type especially built for this service, or if it is the phase-converter type installation. The rural representative of your power supplier will be glad to give you the particulars on this.



HAY HANDLING EQUIPMENT elevates hay to mow where it is distributed uniformly over the drying ducts by combination conveyor-distributor.

Some recent developments that we should not overlook have taken place in connection with drying baled hay. The short, loose bale has changed the picture.

It is hard to get drying air to go through a long, tight bale and a long, loose bale tends to fall apart in the middle after drying. But, a short, loose bale can be dried in a mow, bin, or wagon, and since it is short will not get much looser on drying and does not tend to buckle in the middle and fall apart.

Several experiment stations have reported success in drying short, loose bales.

Drying short, loose bales . . .

We "random-dumped" these short, loose bales of third crop alfalfa hay at about 50 per cent moisture into our drying building late last fall. It snowed the day the hay was put in and shelled corn was being dried at the same time in the other half of the building. The drier ran over the weekend and by Monday there were 10 tons of excellent hay and 1,000 bushels of well-dried corn to take out and store. Our drying building has built-in conveyor equipment for taking out both corn and hay with a minimum of labor.

The normal capacity of this building, when the crop drier is burning 7 to 10 gallons of fuel oil per hour, is about 20 tons of chopped hay, 1,000 bushels of corn, or 1,500 bushels of oats per 24 hours of operation.

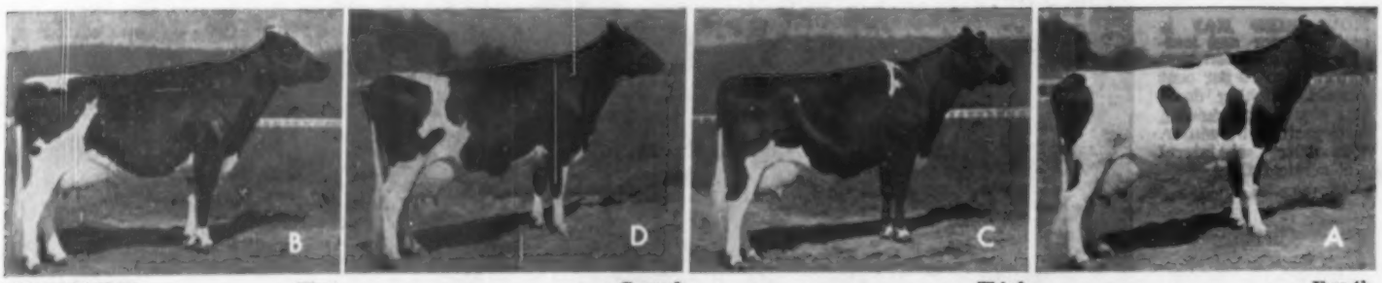
From our limited trials it appears that the capacity of the short, loose hay bales in summer operation may be close to that of chopped hay. There probably will be a slightly higher fuel cost in drying loose bales random-dumped into a drying bin or building. This cost, however, should be offset by a saving in labor through the use of a conveyor for putting bales into drier and moving them to final storage.

More protein — better color . .

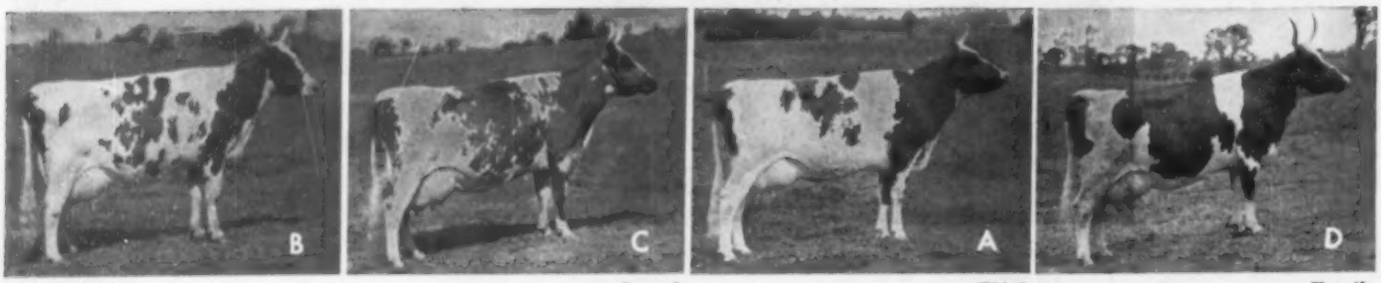
On the average, baled hay finish-dried either in a mow, bin, or wagon has both a higher protein content and bet- *(Turn to page 447)*

The author is professor of agricultural engineering at the University of Wisconsin.

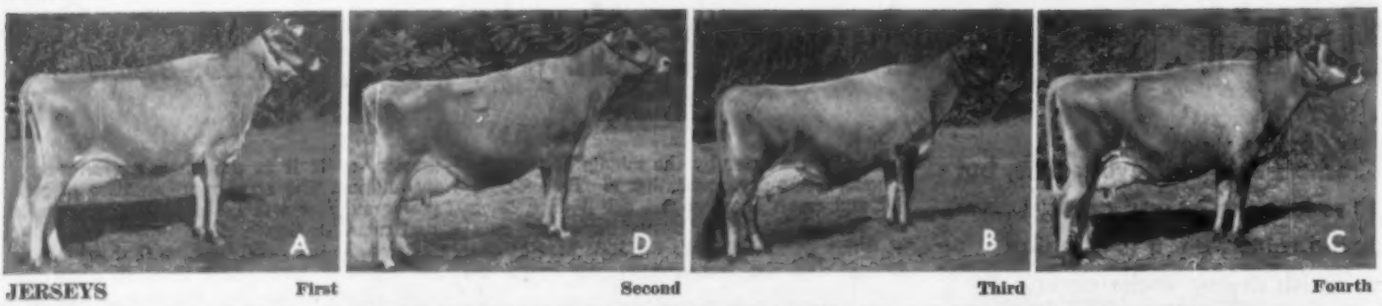
Here are the correct placings:



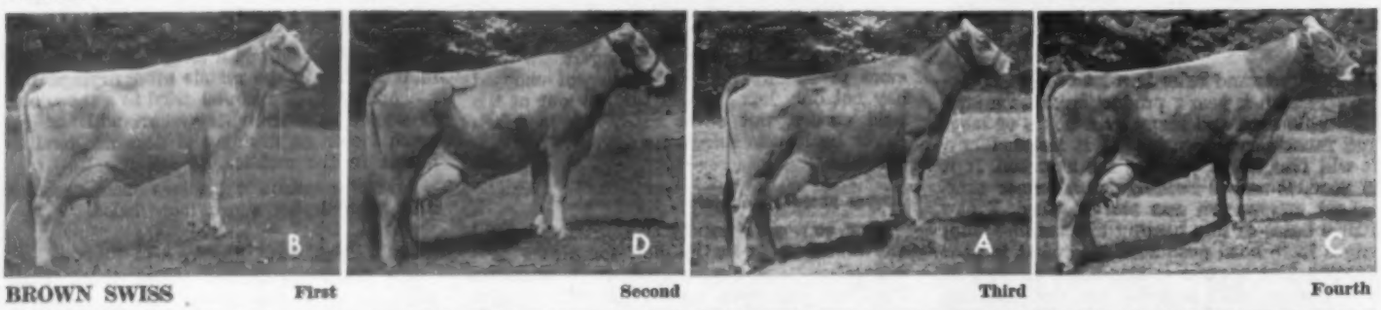
HOLSTEINS First Second Third Fourth



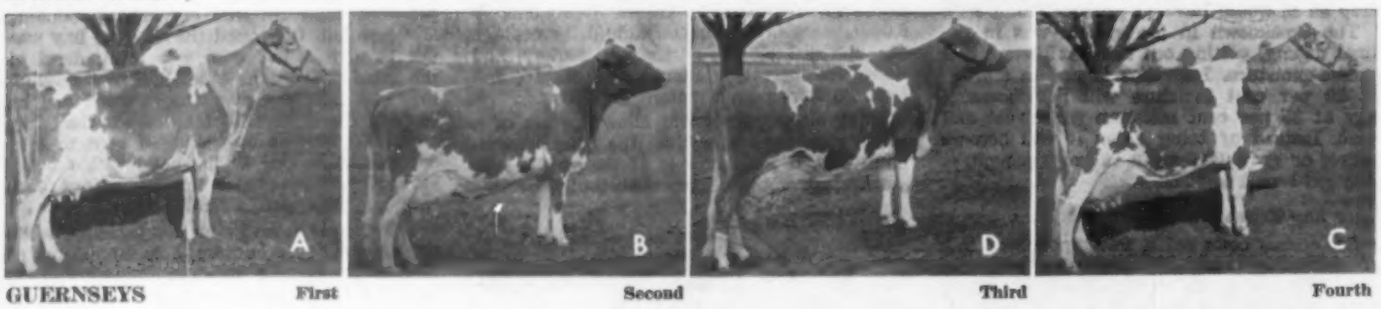
AYRSHIRES First Second Third Fourth



JERSEYS First Second Third Fourth



BROWN SWISS First Second Third Fourth



GUERNSEYS First Second Third Fourth

OFFICIAL SCORING KEY FOR 1961 JUDGING CONTEST

HOLSTEINS B D C A

B D C A— 100	D B C A— 94	C B D A— 78	A B D C— 56
B D A C— 96	D B A C— 80	C B A D— 56	A B C D— 28
B C D A— 92	D C B A— 80	C D B A— 72	A D B C— 30
B C A D— 70	D C A B— 52	C D A B— 44	A D C B— 16
B A D C— 64	D A B C— 52	C A B D— 28	A C B D— 14
B A C D— 56	D A C B— 38	C A D B— 22	A C D B— 8

AYRSHIRES B C A D

B C A D— 100	C B A D— 96	A B C D— 68	D B C A— 38
B C D A— 90	C B D A— 86	A B D C— 44	D B A C— 34
B A C D— 86	C A B D— 78	A C B D— 64	D C B A— 34
B A D C— 62	C A D B— 50	A C D B— 36	D C A B— 16
B D C A— 66	C D B A— 58	A D B C— 16	D A B C— 6
B D A C— 52	C D A B— 40	A D C B— 12	D A C B— 2

JERSEYS A D B C

A D B C— 100	D A B C— 90	B A D C— 78	C A D B— 56
A D C B— 96	D A C B— 86	B A C D— 68	C A B D— 60
A B D C— 94	D B A C— 74	B D A C— 68	C D A B— 56
A B C D— 84	D B C A— 54	B D C A— 48	C D B A— 40
A C D B— 86	D C A B— 66	B C A D— 48	C B A D— 44
A C B D— 80	D C B A— 50	B C D A— 38	C B D A— 34

BROWN SWISS B D A C

B D A C— 100	D B A C— 96	A B D C— 84	C B D A— 42
B D C A— 96	D B C A— 82	A B C D— 64	C B A D— 36
B A D C— 94	D A B C— 86	A D B C— 50	C D B A— 38
B A C D— 74	D A C B— 62	A D C B— 56	C D A B— 28
B C D A— 96	D C B A— 58	A C B D— 40	C A B D— 26
B C A D— 60	D C A B— 48	A C D B— 36	C A D B— 22

GUERNSEYS A B D C

A B D C— 100	B A D C— 90	D A B C— 82	C A B D— 64
A B C D— 94	B A C D— 84	D A C B— 72	C A D B— 60
A D B C— 96	B D A C— 76	D B A C— 72	C B A D— 54
A D C B— 86	B D C A— 56	D B C A— 52	C B D A— 40
A C B D— 84	B C A D— 64	D C A B— 52	C D A B— 46
A C D B— 80	B C D A— 50	D C B A— 42	C D B A— 36

The official judges

ALLEN HETTS

Allen Hetts, a Holstein breeder from Fort Atkinson, Wis., judged the **HOLSTEINS.**

Born and raised with cows, he was active in 4-H work and took over operation of the family farm at the age of 18 when his father, Roy L. Hetts, died. Allen is the third generation to carry on the breeding program, involving Crescent Beauties, begun in 1910. He has bred several All-Americans and has judged many state and regional shows. He operates 110 acres; milks 30 Holsteins.

P. DAVENPORT

Preston Davenport, the owner of Toll Gate Farms of Litchfield, Conn., judged the **AYRSHIRES.**

Born and raised on a Massachusetts dairy farm, he was active in 4-H before entering Massachusetts Agricultural College.

Following graduation he managed High Brook Farm in Connecticut; founded his own farm in 1939. He operates 225 acres with his son, Lowell; the herd numbers 175. He is a member of the Ayrshire Association's executive committee.

PAUL JACKSON

Paul Jackson, Wilmington, Ohio, judged the **JERSEYS.**

Born on a small Ohio farm, following World War I he became herdsman and showed the Ohio State University herd five years, then went to Breezy Hill Farm for 19 years where he bred and developed Wonderful Advancer. Following Breezy Hill sale, he spent 10 years in public relations with a commercial feed company. An official classifier of Jerseys since 1946, he has judged many of the major shows.

C. F. FOREMAN

C. F. Foreman, professor of dairy husbandry and coach of Iowa State's dairy judging team, judged the **BROWN SWISS.**

Born on a Kansas farm, he graduated from Kansas State University and was extension dairyman in Kansas before taking graduate work at the University of Minnesota. He served on Minnesota's dairy staff before coming to Iowa in 1955.

An Approved judge for all dairy breeds, he has judged many state and regional shows.

T. A. KNIGHT

T. A. "Art" Knight, manager of Adohr Farms, Camarillo, California, was **GUERNSEY** judge.

Connected with Adohr since 1929, he has been manager since 1942. One of world's largest dairy herds, it has over 4,000 Holsteins and Guernseys.

Knight is a member of the board of Adohr Milk Farms, Inc., past president of the California Guernsey Cattle Club, and currently a member of its board of directors. He is on the Approved list of Guernsey judges.

their reasons

HOLSTEINS - B D C A

I placed this class of Holstein cows **B D C A.** I placed **B** over **D** because of the shapeliness of her udder, which shows considerably less depth and is more nearly level at the floor. Her fore udder is more strongly attached and the teats are more correctly placed on the udder. She has more stretch and scale, and is deeper in her fore rib than is **D.**

However, **D** has somewhat more balance and has an advantage in feet and legs in that she possesses exceptional depth of heel and stands more correctly on her front legs, indicating that she is wider at the chest floor.

I placed **D** over **C** because of her exceptional balance. She has more width of chest and is stronger and smoother in her topline. Again, **D** has the advantage in feet and legs. She has more strength of bone in her hock area, and has more depth of heel.

I placed **C** over **A** on depth of body and spring of rib. **C's** udder is attached higher and wider in the rear and is considerably better balanced when viewed from both the side and rear. **A** lacks the strength and capacity of the other three cows in the class and, in my opinion, is a very logical bottom in the class.

AYRSHIRES - B C A D

I placed this class of Ayrshire cows **B C A D,** with a very close top pair. **B** is placed over **C** because of her scale, strength, and general symmetry. **B** excels in shape and width of udder. She has a more nearly level udder floor, has proper size, well-placed teats, and carries her udder somewhat higher than does **C. B** is smoother and wider in her rear udder attachment. **B** has the advantage in strength of heart and width of chest and a slight advantage in loin and rump. I concede to **C** a leaner neck and sharper withers. **C** also excels in dairy character. This is a very close pair with **B** being in higher condition, appearing to be more recently fresh compared to **C,** an older cow, showing extreme leanness and angularity.

I placed **C** over **A** because of her angularity and dairy character. **C** has the advantage of more character in her head, is longer and leaner in her neck, and is sharper at the withers. **C** has greater depth of body and has less fleshing at the pins, tail setting, and rump region. **C** has greater capacity of udder and it is of finer quality. **C** also excels in thinness of her thighs.

I placed **A** over **D** because of her strength of top and smoothness over the loin and rump. **A** also has the advantage of a more evenly balanced udder and is more correct in the size and placement of teats. **A** is somewhat longer in her body and is fuller in her heart and chest. I do concede to **D** a slight advantage in dairy character and depth of body. **D** does not have the stretch and scale necessary to place her higher in the class.

JERSEYS - A D B C

I placed this class of Jersey cows **A D B C.** I believe **A** is an easy top due to her advantage in Jersey breed character, smoothness and blending of body, more desirable udder, and more uniform in teat size and teat placement.

I placed **D** over **B** because of length and depth of body, smoother in rump and better blending of neck and shoulders. While **D** can be criticized in rear attachment of udder, her rear view of udder and uniformity of teats and placement are more desirable. I do grant, however, that **B** excels **D** in breed character.

I placed **B** over **C** on length of body, length of neck, smoothness of shoulders, more clean cut about the head and neck, and a little more dairy character throughout.

BROWN SWISS - B D A C

I placed this class of Brown Swiss cows **B D A C.** I placed **B** over **D** because she is a straighter-lined, more nicely balanced cow that has a smoother blending of neck, shoulder, and fore rib; is stronger in her loin; more nearly level from hooks to pins; and flatter in her tail setting. **B** has more width to her rear udder attachment, length on her udder floor, and more veining on the udder than **D.** She also is deeper in her heart and has more spring to her ribbing. I will grant that **D** has more breed character in her head and is a cleaner-cut cow that is leaner in her neck and flatter in her thighs than **B. D** also has a bit larger udder with more fullness to the fore udder than **B.**

I placed **D** over **A** because she has a larger, more nicely balanced udder that is higher in its rear attachment, longer in its fore attachment with more fullness to the fore udder and with less quartering and halving. **D** also has a smoother blending of neck, shoulder, and fore rib; is stronger in her loin; has more width over the rump; and is flatter in her tail setting — faulting **A** for being slightly wry-tailed. On the other hand, **A** is a cleaner-cut cow that is leaner in her neck, sharper at the withers, and more prominent at her hooks and pins. **A** also has more depth and fullness to her heart girth and length to her barrel than does **D.**

I placed **A** over **C** because she is a milkier-appearing cow that is leaner in her neck and sharper at the withers. She has a much more evenly balanced udder with a more nearly correct teat placement than **C.** Her udder is fuller in the fore quarters, longer and stronger in its fore attachment, and has more height and strength to the rear attachment. **A** also has more breed character in her head than **C.** However, **C** is a more ruggedly-built cow that is wider in her chest, fuller through the heart girth, and has more depth and spring to her rear ribbing. **C** also is a bit less prominent at the point of shoulder, is stronger in the loin, smoother through the rump, and stands on more substance of bone than **A.**

I placed **C** at the bottom of this class because she lacks balance of udder and is weak in both fore and rear udder attachments.

GUERNSEYS - A B D C

In this class of Guernsey aged cows, I think we have an outstanding animal to head the class. I placed them **A B D C.**

A is outstanding in her over-all balance, with an exceptionally strong top line and well-balanced udder. She has a long, clean neck and is considerably neater around the head than **B,** although **B** is a little sharper at the withers. **A's** udder floor is very level and the front and rear teats line up exceptionally well. She has a teat on every corner and they are a very desirable size.

B places over **D** with her great depth of heart and rib, also showing more dairy character, much sharper in the withers than **D,** and much neater around the tailhead. She is also stronger on her hind legs. I grant **D** is a little neater around the head and much smoother in fore udder attachment, with a more desirable teat size for machine milking.

D places over **C** on her over-all length and well-balanced udder. **D** is carrying a lot of flesh and does not show as much depth of rib as the two cows above her. I would like to see **D** stronger in her loin.

C has more heart and body capacity than **D** with a stronger pair of hind legs. However, the udder on **C** tilts forward and her rear udder attachment is not as good as on **D.** The tailhead on **C** is not as neatly set as on **D,** granting **D** is a little high in the tailhead region. I thought the udder and length of **D** easily put her over **C.**

New facts about hauling pasture

In Ohio, cows ate 50 per cent more dry matter from soilage than silage, averaging about 750 pounds more milk during season.

by A. D. Pratt and R. R. Davis

SEVERAL years ago we realized that many questions concerned with hauling pasture to cows could not be answered because of the limited research facts available. Therefore, plans were made to compare soilage (green feeding) with silage. Some local dairymen had already abandoned the practice in favor of the convenience of silage.

Our experiment yielded many facts that support soilage feeding and supplement the practices that have been described in previous issues of Hoard's Dairyman.

The fields providing soilage were seeded to Ranger alfalfa and brome grass. Some volunteer Ladino came in. The first growth was harvested and ensiled on June 11, 12, and 13, 1956, for feeding in comparison with green feeding which began on May 14, 1957.

First growth of the 1957 season was ensiled June 4 to 10 for feeding in late July when the first silo had been emptied.

Second cutting was ensiled July 25 to 29 for feeding during the first half of the 1958 season. First growth of the 1958 season was ensiled on June 3 for feeding July 25 to September 17 when the second season was over.

Chopped twice daily . . .

Soilage was harvested twice daily to avoid wilting and heating before it was fed. Animals were fed individually, but more than they would eat, to allow a small weighback. Each harvest of soilage was sampled for dry matter analysis. The pooled daily refusal also was analyzed for dry matter content.

Each year, 30 milking cows with previous production records were divided into six comparable groups. Three groups were assigned to soilage and three levels of grain feeding:

1. Zero grain.
2. Full grain (0.4 pound grain per pound of milk above 20 for Holsteins and 0.5 pound grain per pound Jersey milk above 12).
3. One-half the above rate. The other three groups were assigned to silage and grain at the same three levels.

Daily harvest was accomplished with a side-mounted chopper which delivered into a self-unloading wagon with cross conveyor. During each season, one rainy period occurred when the tractor rutted the field. The damaging effect was no greater than we have experienced due to cows sinking into wet rotationally-grazed fields. No daily harvests were missed due to weather.

In May 1957, when grass was quite immature and high in moisture, one Holstein cow ate 350 pounds of grass and averaged 348 for three days; one Jersey ate 250 pounds.

Over the 12-day period when the first growth was being harvested, the soilage group ate an average of 203 pounds daily while the silage group ate an average of 66 pounds.

Over the season of 18 weeks, the cows fed soilage ate one-half more dry matter and produced one-third more 4 per cent fat-corrected-milk than the cows fed silage.

Fresh grass more palatable . . .

Palatability is a big factor determining intake. Although the meadow crop was wilted before ensiling, the silage was not as palatable as grass.

Digestion trials were run on some of the same cows used for the feeding experiment, thanks to the cooperation of Dr. H. R. Conrad. Trials on May 26 and on June 24 showed a decline in digestibility of dry matter from 67.7 per cent to 56.0 per cent, thus showing the necessity of feeding soilage that has not reached an advanced stage of growth.

Another trial beginning on August 19, when second growth material was fed, showed a dry matter digestibility of 65.1 per cent, similar to that of May 26. Five coefficients of digestibility of dry matter averaged 8 per cent higher than those of silage fed at same time.

Coefficients of digestibility of dry matter were 3 per cent higher for silage and grain than for silage alone and 5.6 per cent higher when grain was fed with soilage.

Feeding the full rate of grain increased digestibility of dry matter of silage 2 per cent more, but full grain feeding did not increase the digestibility of soilage beyond that obtained with the half rate of grain feeding. The protein of grass was better utilized than that of silage.

More dry matter consumed . . .

The three groups fed soilage ate an average of 29.5 pounds dry matter daily throughout the experiment, while those fed silage ate only 20.6 pounds. For the two years those fed soilage ate one-half more dry matter.

More energy, too . . .

This increased dry matter intake of soilage, coupled with the higher digestibility of dry matter, resulted in a great increase of energy in excess of maintenance requirements available for milk production. Grain feedings further increased total dry matter intake.

The cows fed soilage and no grain produced more 4 per cent fat-corrected-milk than those fed silage, even with full grain feeding. The half rate of grain feeding increased milk production with both soilage and silage feeding.

Full grain feeding increased milk production further, but not sufficiently to be of practical significance. The variability in milk production was high due, at least partially, to having one Holstein with four Jerseys in each group.

On the whole, the cows fed soilage but no grain produced an average of 30.5 pounds daily, a third more than those fed silage. Milk production due to feeding the half rate of grain was significantly greater.

Soilage cows hold weight . . .

It is generally believed that grain feeding will hold or increase body weight. The results of this experiment show that cows fed soilage held their weight or gained more than those fed silage. However, grain feeding showed no significant effect on body weight changes. Perhaps this was because grain feeding was accompanied by increased production.

Increasing grain feeding from the half to the full rate resulted in a corresponding decrease in forage dry matter intake.

In summary, cows ate one-half more dry matter from soilage than from silage. The dry matter of soilage averaged 8 per cent more digestible. These facts, coupled with a 16.5 per cent loss of dry matter during the silage fermentation, justify a higher labor requirement for daily chopping. Our economists have found this to be equivalent to 350 to 400 pounds more milk. The cows actually produced an average of 750 pounds more milk in the season when fed soilage rather than silage.

THE END

The authors are members of the department of dairy science at the Ohio Agricultural Experiment station.

Why is GRASS SILAGE good or bad?

While we don't have all the answers, we can pinpoint conditions which lead to success or failure.

by M. E. McCullough

GOOD-QUALITY SILAGE is relished by milk cows. They will eat enough to supply most of the nutrients needed for profitable milk production.

ONLY a dairyman faced with supplying feed for his cows can fully realize the meaning of "bad silage." To hopefully open a silo and find that cows will not eat it is to see dollars wasted on seed, fertilizer, labor, and equipment. That such things do happen is a recognized tragedy in most areas.

First, perhaps we should define what we mean by bad silage. Since the purpose of silage is to preserve a crop for producing milk, a silage is bad when it will not support milk production and results in less money being made than the dairyman should have realized from his herd.

On this basis, we can divide silage making into two categories where trouble can start. The first area is **stage of cutting.** A bad silage can be made before the crop is even harvested. This results from delaying harvest until the crop has advanced in maturity to a degree that it is so low in feeding value, milk production suffers.

With grasses and cereals this is anytime after heading and with legumes, after the very early bloom stage. Thus, studies in several states have shown that oats harvested at the early head stage can be made into a milk-producing silage, but, when cut later, are less useful as silage.

Less digestible; intake reduced . . .

Two reasons exist for this difference. First, the digestibility drops from 65 per cent or above to 50 per cent and secondly, intake is reduced. The true nature of this difference is seen when the two factors are combined.

A cow consuming 100 pounds of early-cut oat silage has a TDN intake of 16 pounds while an intake of 80 pounds of late-cut oats will provide only 10 pounds of TDN. This is a difference of 60 per cent in favor of the early-cut silage. **The first rule in making good silage is cut at the proper stage.**

Having produced a high-quality forage and cut it at the optimum stage of maturity, the second step is to do a good job of preserving it in the silo.

Briefly, the idea is to establish the proper conditions for bacterial conversion of carbohydrates to acids until the pH is low enough to preserve the silage. Two factors in this process that are not generally recognized are the size of this conversion and the importance of time.

Timing is important . . .

In oat silage, for instance, to preserve 200 tons of silage it is necessary to convert some 20,000 pounds of carbohydrates into 10,000 pounds of lactic acid. Of great importance is the fact that this tremendous manufacturing job must be completed **within 4 days** for greatest efficiency. To accomplish such a task, bacteria must have good working conditions.

Although bacteria have no labor union to outline working conditions, careful observation indicates that they work best when supplied with adequate raw materials (carbohydrates), a dry matter content between 25 to 30 per cent, an absence of air, and a minimum of free nitrogen compounds. If these conditions are not met, trouble brews.

In the absence of enough carbohydrates, the organisms frequently are unable to complete their task in the early hours after ensiling. When this happens, they start breaking the protein up in simple nitrogenous compounds, and the amount of acid needed to lower the pH is multiplied 6 to 10 times. Since there was insufficient carbohydrates to begin with, the situation becomes desperate.

Although the bacteria never give up, the results of their efforts are usually a "smelly mess" of silage with little feeding value left. In poorly chopped and packed silage, so much air is trapped that the desired bacteria do not grow. This results in more of a rotting process than in good fermentation.

Since nearly 50 pounds of acids must be produced per ton of forage, it follows that the reaction is not likely to be influenced greatly with one or two pounds of some chemical. To affect this large quantity of materials requires the use of 100 to 200 pounds of additive such as corn and cob meal or similar material or wilting to change the dry matter content to about 30 per cent.

In a 200-ton silo, changing the dry matter content from 20 to 30 per cent increased the dry matter stored by one-third. Obviously, this is a major change in terms of materials available for fermentation.

Wilting usually helps . . .

When weather conditions are good, wilting greatly increases the odds in favor of making good silage, although it adds another field operation. When wilting cannot be practiced or even greater odds in favor of good silage are desired, feed additives are the answer.

In addition to insuring good silage, feed additives also increase the feeding value of the silage. Recent experiments at two experiment stations have shown that adding 150 to 200 pounds of corn and cob meal per ton of grass silage results in a silage equal to good corn silage for dairy cows.

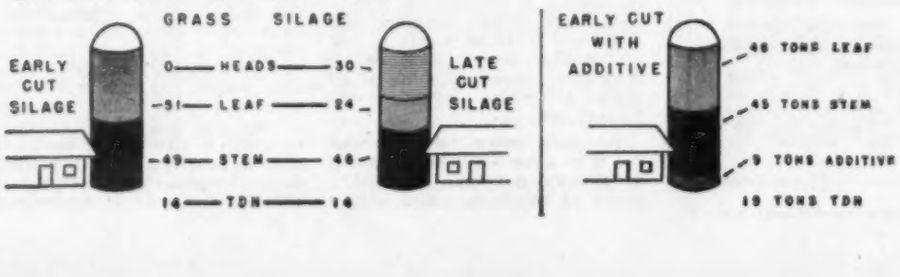
Depends on dairyman . . .

The difference between good and bad silage is thus the result of several decisions by the dairyman. When a high-quality crop is cut early, wilted or a preservative added, chopped fine and packed well, the dairyman has little worry about ending up with bad silage. An error at either point may well result in lower milk production and less profit. To do two things wrong is to invite real trouble.

THE END

The author is dairy nutritionist at Georgia Experiment Station.

What's in a 100 ton silo?



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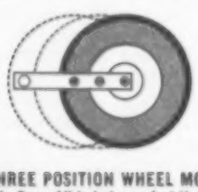

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FEEDING

by J. K. Loosli

Questions from dairymen

Be cautious when feeding rye . . . 14 per cent protein is adequate for weaned calves . . . colostrum may be thinned with warm water . . . continuous egg feeding questionable.

HOW much rye is it safe to feed to milk cows in combination with other grains?

It is usually advisable not to have rye make up more than 40 to 45 per cent of the grain mixture for dairy cows. Rye is less palatable than corn, oats or barley. Rye should be ground (not too finely) or crushed for best results. Sometimes rye contains ergot, and when the contamination is too heavy the grain becomes especially unpalatable and may even be dangerous.

I am wondering if the calf feed formulas you listed in the January 10, 1961 issue are better than the one that you ran two or three years ago. The earlier one containing 100 pounds of cracked corn, 100 pounds of crimped oats, 50 pounds of linseed oil meal, 20 pounds of molasses, 2 pounds of bone meal, and 1 pound of salt, has given me satisfactory results.

Dicalcium phosphate and cobalt are not available in our feed stores. Are they necessary?

When your formula is calculated to a percentage basis, or pounds per 100 pounds of feed, it shows 37 of corn, 37 of oats, 18.5 of linseed meal, 7.4 of molasses, 0.7 of bone meal, and 0.4 of salt. According to my figuring this mixture should contain about 14.8 per cent of total protein.

This is probably sufficient protein for calves 2 to 6 months of age (after they are weaned from milk or replacer) providing good quality early-cut alfalfa or clover hay or high quality second or third cut hay is fed liberally.

Extra protein in the grain mixture may give faster growth with mixed or grass hay or if the hay is not too good in quality.

There is no important difference in the value of the bone meal in your mixture and the dicalcium phosphate suggested in the January 10 issue of Hoard's Dairyman.

Cobalt is recommended only in areas where the forage has been shown to be deficient. This includes the New England States, New York, and the Eastern Seaboard area from North Carolina south, including Florida. Parts of Michigan and Wisconsin have reported cobalt deficiencies, as well as some areas in Central Canada.

In the east and south soybean oil meal and cottonseed meal are usually cheaper than linseed oil meal. They are about equal for growing calves, except linseed may give a sleeker hair coat.

Since you are satisfied with your present grain mixture I would not recommend a change, but if you want more protein sometime you might add 20 to 30 pounds of one of the other protein feeds, or replace the linseed with 70 to 80 pounds of soybean oil meal or cottonseed meal.

We have frozen colostrum and fed it to a few calves as suggested in Hoard's Dairyman. We fed 1 pound of colostrum mixed with 3 pounds of hot water twice daily, starting after calf had been fed its mother's milk the first week.

We also added 3 eggs to a pint of colostrum, but growth has been poor compared to calves raised on whole milk.

Can you give us any information on how frozen colostrum and infertile eggs can be used?

To help understand the proper use of colostrum and eggs, let's look at the composition of these materials shown in the table.

	Milk	Eggs	Colostrum
Water	87.2	73.7	72.5
Protein	3.7	13.4	14.0
Fat	4.0	10.5	8.4
Carbohydrates	4.3	1.4	3.7
Minerals	0.8	1.0	1.4

Both the eggs and colostrum are lower in water and higher in protein and fat than whole milk, but they are still rather watery feeds similar to milk. The values for eggs are for the edible portion.

Colostrum rapidly decreases in protein and fat content after first milking; by the fifth to seventh milking it is like whole milk.

From the similarity of composition it is easy to see that a calf fed 4 to 5 pounds of whole milk twice daily to make normal growth would grow poorly on only 1 pound of colostrum. It looks as if you were not feeding enough colostrum.

Sometimes colostrum is thick in consistency and it may be desirable to thin it by adding 1 pound of warm water to 3 pounds of colostrum. Either skim or whole milk also may be used, but it is safe to feed it without dilution.

It used to be fairly common to feed a few eggs to calves that were not doing too well, but I do not know of controlled studies on continuous feeding of eggs.

Raw incubator waste eggs have been fed to pigs as a supplement to cereal grains with excellent results. With the shells removed, 8 or 9 eggs weigh about a pound. Thus, 3 or 4 eggs furnish about as much protein as a pound of milk, but a little less energy.

I would expect that 2 pounds or pints of colostrum, 4 eggs and 1 pound or pint of water would allow as good growth of a calf as 4 pounds or pints of whole milk. However, I would like to see this tried on a few calves before it is given a strong recommendation for general use.

In the tests with pigs the incubator eggs were cooked to eliminate a possible source of disease. They were ground, shells included, through a food chopper.

Raw egg white contains a protein called **avidin**, which inactivates one of the B vitamins, **biotin**, resulting in a vitamin deficiency in experimental animals after long-time feeding. No such trouble has been seen from feeding raw eggs to pigs, and I would not expect it to occur in calves that have hay and grain along with the liquid food. The problem of disease control should always be considered.

Ask your pasture . . .

. . . if lime is needed. A thick stand every year shows that the necessary elements are present in the right amounts.

by W. R. Thompson

SUMMER LIMING cuts costs and there is less compaction of soil.

PASTURES that are now furnishing very little grazing could be made to supply more feed, especially in spring, if they were properly limed and fertilized.

The pasture mixture best for grazing is 50 per cent grass and 50 per cent clover. To get good results with this mixture, a sound liming program is essential in the low-lime areas.

In Mississippi, 7 out of every 10 acres of open cropland need liming. You won't make as much money on the phosphate and potash you apply as you would if you apply lime along with them. There may be some locked up plant food in the soil that lime will release. This is particularly true of phosphorus. That is why on many pastures when first limed, it appears that lime gives it a big boost the first year. This may be because lime has released some phosphorus.

One pound of phosphorus on limed soil gives about the same benefits as three pounds on low-lime land.

On most Coastal Plain soils, 1 ton lime is needed to bring the pH of soil to 6.0 or 6.5, where it should be for best pasture production.

On heavy soils in the southeast, two tons may be needed.

When you lime, it lasts four or five years, bringing the annual cost down pretty low. It is false economy to apply high rates of nitrogen, phosphorus, and potash to land that needs lime. As a general rule, when a man builds a home, he wants a good foundation so the house won't crack or move around. This is also true with pastures — lime is the pasture foundation.

Slag keeps lime in soil . . .

Dolomitic lime is used in parts of the Coastal Plain areas because it contains calcium plus magnesium. After the lime requirement of the soil is met, many farmers use 600 pounds of basic slag each year to keep up the lime requirement. Both lime and basic slag can be applied any time of the year.

In some cases, farmers have told me they used the amount of fertilizer recommended but did not get the promised results. When I checked, I found they hadn't used any lime. After the recommended lime application, they were well pleased with their pastures.

Summer seems to be the best time to apply lime. Dealers have more time to do the job and trucks can get over the dry land with less danger of compaction.

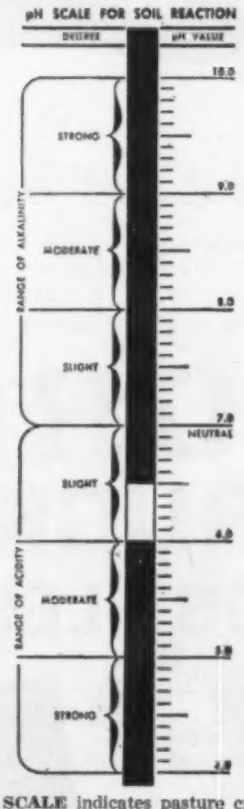
It is unwise to have lime dumped in a pile on the farm to be spread later. Hire someone to haul the lime directly from the car and spread it.

At one time it was thought that temporary pasture crops such as oats, wheat, rye grass, Sudan, and millet did not need lime — only nitrogen. But, most any farmer can tell you that they need lime, nitrogen, phosphate, and potash.

Much of the erosion on our pastures in the southeast happens after the fertility of the soil gets so low that it won't grow a good cover. Where lime has been applied to the pasture, or it is in the soil naturally, it is not uncommon for dairy farmers to have more temporary grazing than they need and they can put up part of it as silage. This is true of oats, wheat, Sudan and millet.

A good example of what can be done with hay production was shown in tests conducted by the American Potash Institute in cooperation with Mississippi State University.

After 6 years of correct liming and fertilizing of a piece of land, hay production was 6 to 8 tons per acre as compared with only 1,500 pounds per acre from an unfertilized plot.



pH SCALE indicates pasture crops should have soils medium to moderately acid, or a pH of 6 to 6.5.

The author is an extension agronomist at Mississippi State University.

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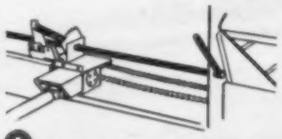

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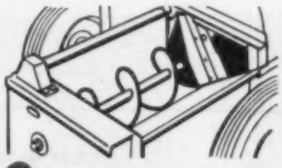

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SAVE ON PRICE! Ford Stylesides are priced below all comparable pickups! That's certified—based on latest available manufacturers' suggested retail prices!

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EDITORIAL COMMENT

READY TO CHANGE?

CHANGE for the sake of change alone has little merit. But some farmers ignore or fear change " as much as they fear the smallpox," to quote our founder, W. D. Hoard. There is nothing as constant as change and yet we continue to see dairymen farming by habit rather than through application of their little used intelligence.

Tomorrow's successful dairyman must have a curious, inquiring, probing mind. He must constantly evaluate why and how he carries on each of his farming operations. He must weigh these against all possible alternative methods. He must be willing to change when his good business judgment indicates there is merit and profit in altering his established procedures. The man who fails to do so will farm with an ever-growing handicap.

IT'S UP TO YOU!

THE farm program outlined in general terms by President Kennedy says to farmers, in effect, "It's up to you." He has suggested that dairymen, for example, be authorized to elect a committee of dairymen to develop a dairy program in cooperation with the U.S. Department of Agriculture. The proposed program would be submitted to a referendum vote of dairy farmers. If two-thirds approve, the program would go into effect.

To prevent abuse of the opportunity offered, Congress could exercise veto powers within 60 days of the date of submission of the proposal for congressional review.

Obviously, there are many ramifications to a farm program of this nature. The general approach, however, is refreshing and, in our opinion, has merit. For those who are quick to take partisan exception, we would point out that former Vice-President Nixon indicated early in his campaign that he, personally, favored this type of an approach. We have this on the most reliable authority. So let's evaluate the program on its merit and not with reference to its partisanship. There has been too much of the latter for too long.

The vast majority of dairy farmers are quite familiar with the approach recommended. In essence and in principle, this is how the federal milk marketing order system works and has worked since 1937. Twenty-four years of experience should make us familiar with the basic procedure.

Since the new farm bill has not been drafted, it is impossible to analyze its provisions in detail but we offer these preliminary observations.

1. With manufacturing milk now being supported at $3.40 per hundredweight, it is doubtful if a new dairy program involving bases would be approved in a referendum. If the price were down around the $3 level, which could mean $2.75 per hundredweight for 3.5 per cent manufacturing milk, the probability is that a base program would be approved.

We think it is important, therefore, that dairymen have enabling legislation which will permit them to institute the type of self-help or base-excess program they may want to use at some future time when the price and income picture may be far less favorable. If dairymen are excluded now, the chances may be very remote of securing the enabling legislation when they will need it. As each year succeeds year Congress becomes more city or consumer-minded, more interested in cheap food and the consumer vote than in helping farmers to work out their economic problems.

2. We have some reservations with reference to the required two-thirds majority in a referendum. We know this has been accepted and has been customary in referenda in the past, but when a base program, for example, is up for consideration we would prefer a higher percentage approval before permitting it to become effective.

REFLECTION ON CONGRESS

WE HAVE been a bit surprised that members of Congress have not assailed more bitterly the farm program proposed by President Kennedy. Actually, it is a reflection on Congress. In effect, here is a public charge that Congress has failed to evolve a farm policy to prevent economic waste, heavy expenditure of public funds, and enable farmers to earn an equitable return for their investment, labor, and management. And, frankly, this is true.

The proposed farm program is also a reflection on farm organizations because it says they have failed to reach policy agreement, they have failed to unite in presenting a coherent farm policy to past administrations and this administration. And so the new farm program would, in reality, bypass the established farm organizations and permit newly-elected farmer representatives to draft farm programs for individual commodities.

Certainly there should be some "noses out of joint" in high places. This discomfiture may engender the greatest effective opposition to the new farm proposal.

BOUQUET TO GENERAL MILLS

BEFORE us is a three-page color advertisement appearing in a recent issue of the Sunday supplement, Parade. The three pages of beautiful color advertising features Betty Crocker Gold Medal flour with special emphasis on "Butterfudge" recipes. To promote increased use of its flour, General Mills offers "fabulous savings on butter." To quote the ad, "Get savings on butter — up to a whole pound free on 25-pound size [sack of flour]. Look for details on special Gold Medal sacks."

This isn't the first time that General Mills has demonstrated its appreciation of dairy products and friendship for the dairy farmer. We hope the present promotion is an outstanding success and we suggest that every dairy farm family in America has an opportunity and an obligation to help make it so.

76 years ago...

It takes two-thirds of all the good cow eats to keep her alive and without loss of flesh, and the other third of ordinary good rations to enable her to yield milk. The expense of two-thirds of the money-earning ration has to be incurred when the cow is earning nothing.

W. D. Hoard

CUT IT EARLY

NEARLY six years ago an article appeared in Hoard's Dairyman entitled, "You can save $125 per month." Dr. J. Thomas Reid, internationally-known research worker at Cornell University, based this statement on results of feeding tests which clearly showed young forages have higher feeding values and produce more milk than more mature forage.

Despite the fact the advantages of early cutting have been told and retold throughout the United States and in foreign countries, it is estimated that four out of every five dairymen still are not using the information.

In an effort to further dramatize the economic importance of moving up the first cutting dates of our perennials, we have asked Dr. Reid to repeat the results of his early feeding trials and also to include more recent findings.

He has done this in our title page feature, "Cut early for more milk," which begins on page 417. So that you, as an individual dairyman, can easily determine the recommended first cutting date for your own farm, our cover page is devoted to a United States map divided into 10 zones, each with a different recommended harvesting period.

While agronomists, nutritionists, dairy husbandmen, and others have assisted Dr. Reid in providing the recommended dates for their respective states, it should be emphasized that these are based on **normal** weather conditions. This spring, for example, we visited the Gulf region near Houston, Texas, and because of excessive rainfall in that area this past winter, it was not possible to get onto the fields March 15, let alone have a first cutting to harvest. Undoubtedly there are other sections of the country where similar obstacles exist.

Despite some exceptions to the average, it is especially important for every dairy farmer to realize that three weeks after the recommended cutting date, each pound of dry matter in forage will produce only 85 per cent as much milk as it would have, if cut at the recommended time.

Even more important, when cut at the recommended time, cows will eat as much as 2½ to 3½ pounds of hay dry matter per 100 pounds of body weight per day. Delaying it 3 weeks will reduce amount eaten to 2 pounds dry matter per 100 pounds of body weight.

Because of its lower value per pound and because cows eat less of it, the over-all value of forage cut three weeks late is only 60 to 70 per cent of that cut at the recommended time.

Early cutting also results in a heavier second cutting, so that it results in a high milk yield per acre.

Since this is the first attempt to map the entire nation, there may be some inaccuracies due to seasonal differences and variations in altitude. However, we strongly urge every dairyman to read this article thoroughly; then put the recommendations to practice wherever possible, with the hope that it will increase the net profits of all dairy farmers.

The American people buy every year around $100 billion worth of products that originate on farms — domestic or foreign. Close to $75 billion, or about $3 out of every $4, go for costs that are added after the products leave the farm.

Questions from Our Readers

What type moldboard?

I have some heavy bottom land soil that makes my plow pull hard. In fact, my tractor is rated as being able to handle five 14-inch bottoms, but I can barely pull a three 14-inch plow in low gear. Would my plow pull any easier if I changed to the slatted moldboards?

Wisconsin W.S.O.

If you have trouble getting moldboards to scour, then slatted moldboards probably would help. Most of the draft of a plow is used for cutting the furrow slice loose. About a fourth of the draft goes for lifting and turning the furrow slice. Therefore, I doubt if you would see much reduction in draft as long as the moldboards are scouring properly.

Draft will increase rapidly, if they are not scouring. Here slatted moldboards would help since, in effect, pressure of the furrow slice against the moldboard is nearly doubled, with better scouring resulting.

—WENDELL BOWERS
University of Illinois

Concrete crumbles

A year ago, I remodeled my barn. In places the concrete seems to crumble. Is there any way to test this to see if the cement was at fault?

Wisconsin T.T.A.

If you have some of the cement left which you used, it could be sent to a private laboratory for test.

However, it is unlikely that the cement was at fault. Frequently, poor-quality concrete is the result of using too much mixing water, dirty aggregate, not enough cement, or improper curing of the concrete after it is placed.

In some cases poor-quality concrete is traced to the use of river sand as aggregate. River sand usually has rounded edges rather than sharp edges which are needed. It is also too fine and a greater amount of cement is required than when sharp, well-graded aggregate is used.

—D. W. BATES
University of Minnesota

Treating algae in swimming pool

Copper sulphate can be used in water tanks to control algae. Is it safe to use in a swimming pool? We have a 33,000-gallon, 20-by 40-foot plastic-lined pool.

Iowa L.F.R.

I might suggest that the problem could be controlled, to some extent at least, by being very careful to eliminate the source of plant food in the water. Algae, like any other plant, requires plant nutrients and if they are not present, of course, cannot grow. You probably should keep the pool covered whenever it is not in frequent use to prevent entry of leaves and other organic material. Also, it is desirable to prevent the entrance of surface run-off water which would carry plant nutrients.

The use of copper sulphate to control algae presents two problems. One is that it would require treatment nearly every day in a swimming pool and the other is that to get effective control, you should maintain a mixture of approximately six parts per million which is too high to be safe since copper sulphate is poisonous. I would suggest that you contact Great Lakes Biochemical Company, Milwaukee 1, Wisconsin, and obtain a product from them called Algimycian. This material is very effective and does not need to be used as often as copper sulphate and would be safe. Complete instructions on the use of this product should be supplied by the company when you obtain the material.

—GORDON P. BARRINGTON
University of Wisconsin

"Raise cows, eh? That's a nice hobby. Never had time for a hobby myself. What line of business are you in, Mr. . . ?

TRANSFLOW

flexible plastic

SANITARY RAW MILK TUBING

Saves you

TIME · STEPS · MONEY

"Like flexible glass!" — that's the way one dairy farmer describes TRANSFLOW Milk Tubing.

As with glass, you can see right through TRANSFLOW to check the flow of milk — or the tubing's interior cleanliness. But you can also run TRANSFLOW "from here to there" in a minimum amount of time, snaking it around obstructions, requiring the fewest possible fittings and couplings. And not only is TRANSFLOW easy to handle, but it's easy to clean, too: you can use any commercially available cleaner and sanitizing agent.

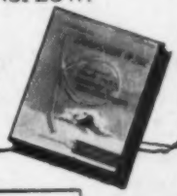
Of course, TRANSFLOW is odorless and tasteless and, because it complies fully with the FDA's "Food Additive Amendment," it is specifically sanctioned as completely non-toxic and harmless.

TRANSFLOW will retain all of these properties unchanged throughout a long service life, too — it's non-aging, highly abrasion-resistant, and there is no possibility of oxidation, as with rubber.

TRANSFLOW is available in a wide range of sizes, from 3/8" ID x 11/16" OD to 3" ID x 4" OD and . . . perhaps best of all . . . TRANSFLOW costs much less to buy and put into service than rigid materials.

With all these advantages, is it any wonder that TRANSFLOW is used by leading manufacturers of Milking Machines, Portable Transfer Systems, Dumping Stations, "Cleaned-In-Place" Cleaning Units and Tank Trucks? Upon request, these manufacturers will gladly send details about their equipment using TRANSFLOW.

For free catalog containing complete information about TRANSFLOW Tubing, write Chamberlain Engineering Corporation, Akron 9, Ohio.



Plastics & Synthetics Division

CHAMBERLAIN engineering corporation

AKRON 9, OHIO

1861-A

CHECKERBOARD service bulletin

Volume 1, No. 5 Ralston Purina Company, Checkerboard Square, St. Louis, Mo. April 25, 1961

Lockway Farms Holsteins— champions in the ring and in the barn!

"I've always believed that production and type must be developed together," says Wayne Locke, Lemasters, Pa. "It's a shame to see a good type cow that won't produce . . . or a good producer that won't last because of type faults."

At the 1961 Pennsylvania Farm Show, Wayne exhibited examples of this belief . . . and set a new show record by winning 7 blue ribbons, including Grand Champion and Reserve Champion females! His 3-year-old Lockway Elva Lucifer competed with her half sister in the championship class.

But just as important, perhaps, is their milking ability at home. Last year Mr. and Mrs. Locke's 92-cow herd (on H.I.R. test) averaged 13,800 pounds of milk and for the fifth year in a row exceeded 550 lbs. of fat. As a first-calf heifer, Elva produced 10,959 lbs. of milk and 516 lbs. of fat. A long-time Purina feeder, Wayne praises the soundness of the Purina Dairy Program.

"It aims for the same goals I do as a dairyman . . . a growthy, fast-developing calf that's

milking at 2 years of age . . . a dry cow program that builds condition and promotes health . . . and a milking ration that brings out all the bred-in capacity our good cows have today."

Further evidence of Wayne's ability as a developer of good cattle is seen in the fact that 3 Locke-bred bulls are now in service with artificial breeding associations; and 13 others with dairy herds in Pennsylvania, Maryland, and Canada.

YOU be the judge!

The two cows pictured below are from the Purina Research Farm herd. Their ages are almost identical. Each has calved regularly, each has produced over 15,000 pounds of milk in her 10 months lactation.

Which is the better cow? You couldn't tell it, but the cow on the left should be the heavier producer because of her bred-in ability. But just look how thin she is (because of the experiment she was on)! She has been producing at the expense of her own body. Notice how thin she is over the hips, at the tailhead, along the backbone; how her ribs stick out; notice the shoulder with the lack of flesh it shows.

This photograph vividly shows what Purina dairy researchers have been proclaiming for years . . . that body condition is by far the most important thing in keeping a herd milking at top production year after year. Smooth hair coats and good fleshing are signs of good condition. Rough coats and "washboard ribs" denote poor condition.

But true condition goes much deeper. It includes the inner health of the cow's vital organs and reserve of minerals and vitamins. You *build* this kind of condition by proper dry cow feeding. You *hold* it by proper feeding of the milking herd.

Your Purina Dealer is the man to see. He'll be glad to show you a research-built feeding program to help you get top profits year after year. Remember, you may not see the difference between good feeding and "just ordinary" feeding right at first. But you *will* see it in the next and future lactations!

FEEDERS ASK JOHN THOMPSON

Manager, Purina Dairy Research

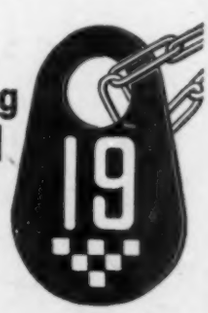
Q. I would like to know how to keep high-producing cows from losing weight the first month after freshening.

A. Frankly, we do not know of anything that will completely prevent this loss in body weight because the better the cow the more she is going to milk. And during the fresh period she just doesn't have enough capacity to consume nutrients enough to prevent body weight loss. All of which again focuses attention on the need for following a good dry cow feeding program. It is one of the best investments dairymen can make, helping cows to deliver strong, husky calves, freshen easily and in good shape, and store up energy and condition which can be used to produce more milk in the next lactation.

Q. I have had foot rot in my milking herd. Some time ago I began using antibiotics in my feed and it helped. I would like to know how long to use it, in what amounts and whether or not cows will eventually become immune to it.

A. If you are satisfied, then you should continue; because if the reverse were true, it would be pretty hard to convince you the added cost was justified. We believe the only true way to measure the value of these things is to equally divide lots of cows where half get no antibiotics and the other half get a fortified ration. You do not know what might have happened in your own herd if you had not been using the antibiotics during the last few months. For that reason we suggest that, as long as you are satisfied, you keep on using them.

What are you paying for a good cow tag?

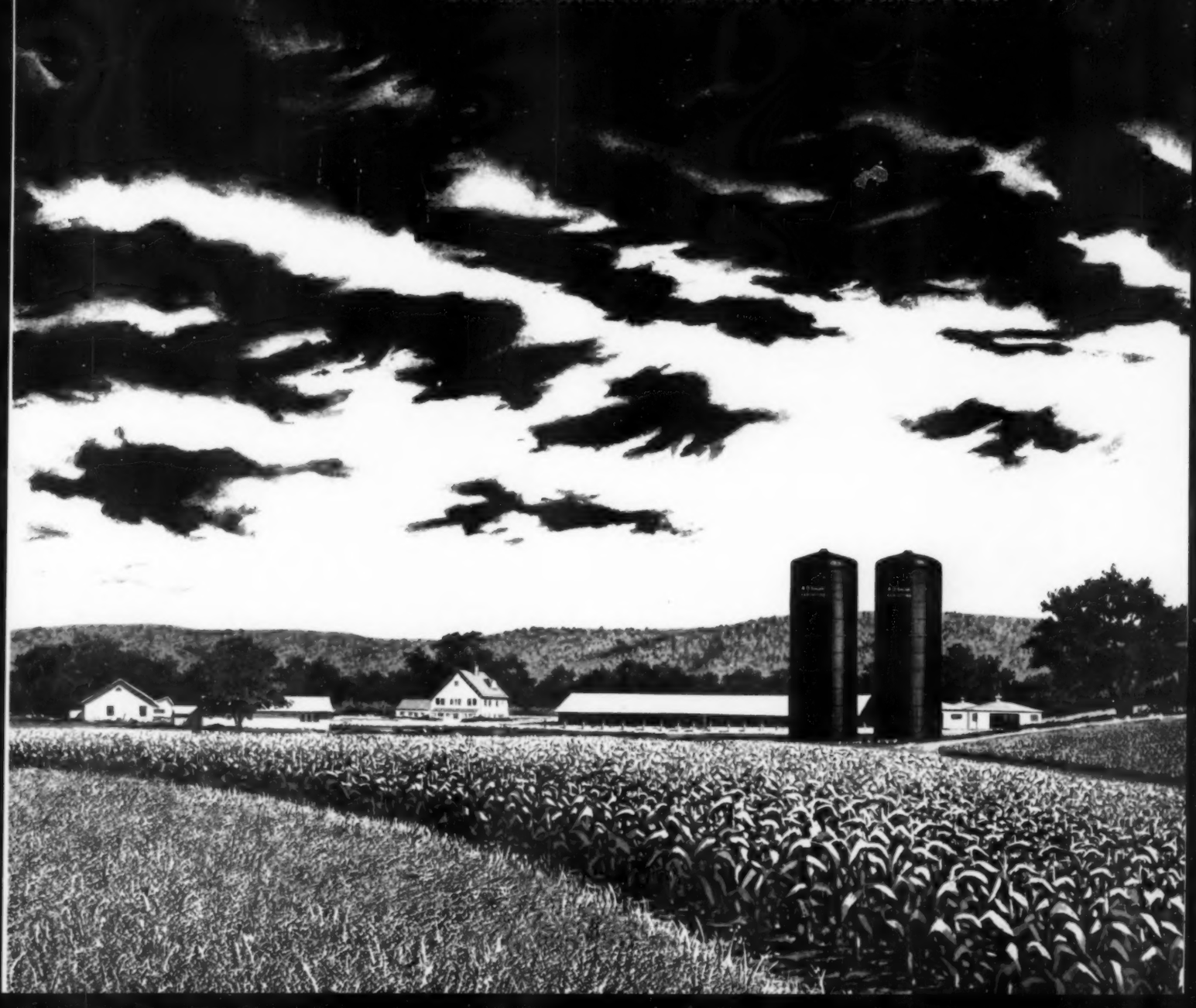


Lots of dairymen are paying $1 and more for the new and greatly improved nylon cow tag and chain sets. Purina has an offer which can cut the cost of these sets for you *more than half!* Every bag of Purina Nursing Chow features a coupon which entitles you to a nylon tag set (complete with chain and ring) for **ONLY 50 CENTS.** Just use the coupon as directed.

AMERICA'S LEADING FARMERS AGREE:

The bright profitable future of your livestock operation is here now!

HERE'S HOW YOU CAN PRODUCE MORE MEAT AND MILK AT A LOWER COST OF PRODUCTION



The Harvestore® System

of mechanically storing and feeding grain and forage crops

The Harvestore System is the challenging answer to the price-cost squeeze facing many livestock ranchers and farmers like yourself. Thousands of other livestock operators have found that the only way they can produce more meat and milk on the same acres, with less labor, and at a lower cost of production—is the Harvestore way. Read why and how the Harvestore System can make your livestock future a bright and profitable one.

Why HARVESTORE is the heart of a new concept of livestock farming

The quality of the forage and grain you feed, the flexibility of your storage facilities, and sharply reducing labor requirements determine, in a large part, the profit you make in the meat and milk you produce. Harvestore is a scientific crop-processing unit designed to maintain crop quality in storage, feeding flexibility–and diminish labor needs.

Harvestore's exclusive principle of "oxygen-free" sealed storage provides peak nutritional goodness during storage and processing for forage and high-moisture grain crops, so they maintain maximum nutritional value when they are ready for feeding. Here's how it works. Unlike conventional storage units which allow air to frequently contact feed and cause spoilage, the HARVESTORE compensates for the necessary air pressure changes that take place in any storage unit. It does this by "breathing" air in and out of its exclusive breather-bag system. Air contained in the bag can't touch the feed and cause spoilage.

Harvestore's exclusive sweep-arm bottom unloader handles both forage as Haylage in the 40% moisture range or high moisture corn . . . providing unequalled flexibility in farm crop feeding. This combination of oxygen-free storage and bottom unloading brings true and dependable automation to the storing and handling of any feed crop . . . and provides new profit-making possibilities for any livestock farmer.

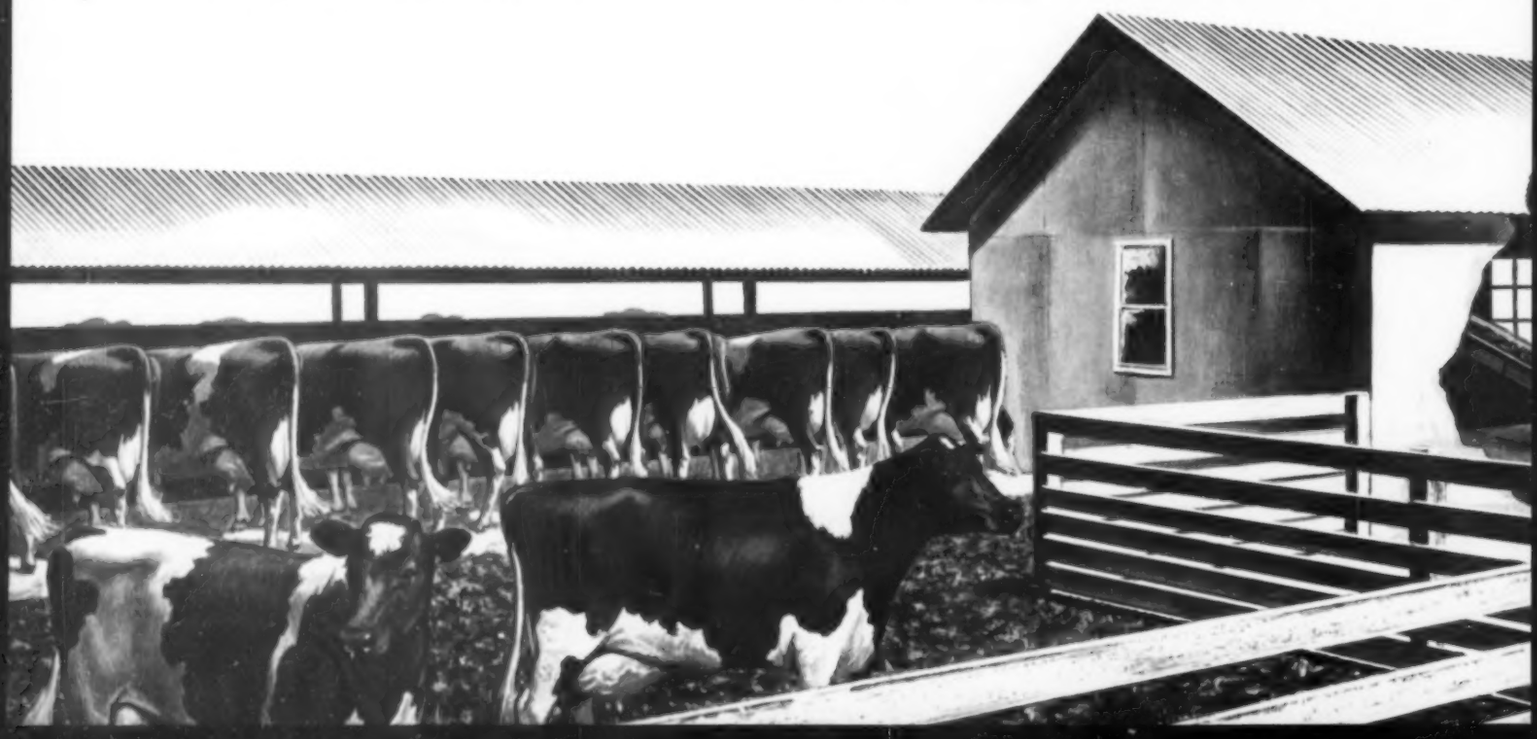
How the HARVESTORE System can make more money for you

Cut field and crop losses by harvesting and storing forage and grain crops at the peak of their nutritive value—not when the weather dictates. Picking corn early at 20-30% moisture levels and storing in a HARVESTORE saves up to 18% of the crop normally lost through conventional harvesting and storing. Forage stored in a HARVESTORE as Haylage results in savings of up to 20% normally lost through conventional hay harvesting.

Save time and reduce labor by eliminating costly field and extra handling operations. Shell or grind corn directly from the field into a HARVESTORE. Put up hay as Haylage with fewer field operations . . . and with only the turn of a switch, cattle are fed in mere minutes.

Save feed costs. College tests performed only in a HARVESTORE show that HARVESTORE high-moisture ground ear corn produced the same beef gains at 3¢ less cost per lb. of gain compared with crib-stored ground ear corn. Beef cattle fed HARVESTORE Haylage produced 2.18 lbs. of gain per day—without any supplement, corn or grain.

Now, Harvestore provides expert feedlot planning. Why take chances on a feedlot that may not be designed for maximum efficiency . . . or rely on advice that is not qualified to consider or coordinate all necessary phases of feedlot feed handling. MAIL THE HANDY POSTAGE-FREE POSTCARD TODAY FOR FULL INFORMATION ON HARVESTORE'S FEEDLOT PLANS SERVICE.



Here's "Farm Proof" that the Harvestore System pays off in more dairy profits!

Saves $1,575 a year on labor . . . and protein

"My two Harvestores have enabled me to save $1,000 each year on labor. This includes harvesting my forage and corn, plus the savings on once-a-year grinding. Also, by feeding Harvestore Haylage to my 65 Holstein cows, I cut my protein supplement by one-third—an additional savings of $575 a year. My farm now supports 50% more dairy animals than it did before Harvestore."

KENNETH KASPER, Medford, Minnesota

First in, first out feeding—perfect for summer dairy drylot operation

"Because there is no feed spoilage and my feed value remains high, month after month, I consider my Harvestore investment the best I have ever made. First in and first out feeding, made possible by Harvestore's bottom unloader, fits in perfectly with my dairy plans for summer drylot feeding. In 9 years I have never had frozen silage."

HAROLD PURDY, Canandaigua, New York

40-cow Brown Swiss herd average 10,228 lbs. of 4.4 milk with 452 lbs. butterfat

"I can rely on my Harvestore to keep a constant supply of good feed on hand all the year 'round. I would never go back to the old way of pasturing a few months in the summer, and feeding hay or green chop the rest of the year. Haylage is the best feed, and Harvestore offers the best feeding system that ever came out."

CLARENCE IMHOFF, Roanoke, Illinois

Haylage increased milk production over green chop

"Last summer we discontinued feeding Haylage for two months because we had plenty of green chop. As a result, our milk production dropped an average of 21%. In September we began to feed out of our Harvestore again in the hopes that it would increase our base. It did. In fact, our milk production for the next four months increased an average of 19%."

H. F. GREEN, Austin, Texas

Cuts cost of purchased feeds $87.60 per cow per year

"In comparing a year's operation before Harvestore with last year's with Harvestore, I found that I reduced my cost of purchased feeds a total of $2,452.78—or $87.60 per cow per year, by processing my farm crops through my Harvestores. In addition, I increased my herd test 8.8%, pounds of butterfat 28.2%, and milk production 24%."

HENRY C. PRANGE, Sheboygan Falls, Wisconsin

START YOUR HARVESTORE PROGRAM NOW!

Don't let financing hold up your starting a HARVESTORE PROGRAM for increased profits. If local financing is not available, your dealer will be happy to present the outstanding A. O. Smith Harvestore Purchase Plan.

. . . (TEAR OUT ALONG PERFORATED LINES) . . .

WRITE TODAY FOR A BETTER LIVESTOCK FUTURE

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Harvestore Products Division
Dept. HD-41
Kankakee, Illinois

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Please send me without charge:

☐ Harvestore Feedlot Plans Book ☐ Harvestore Farm Profit Plan Book
☐ Harvestore High Moisture Corn Booklet ☐ Harvestore Haylage Booklet
☐ College and "On-the-Farm" Dairy Feeding Test Results.

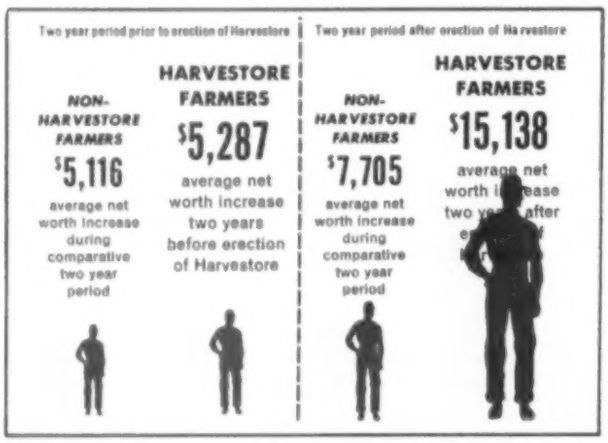
NAME _____

TOWN _____ RFD _____

COUNTY _____ STATE _____

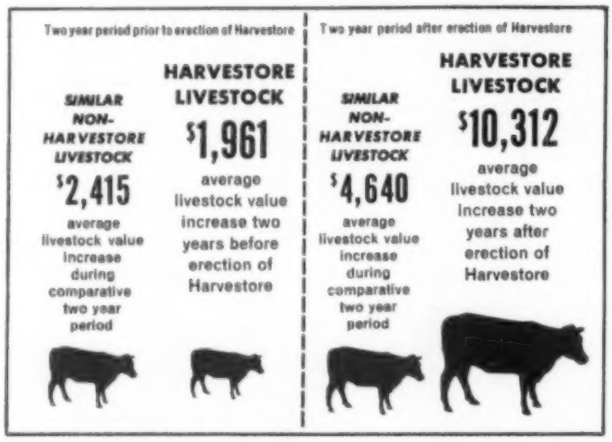
Working with several financial institutions,

a study of net worth of 200 farmers over a 5-year period shows HARVESTORE farmers make more money


Two year period prior to erection of Harvestore
NON-HARVESTORE FARMERS
$5,116
average net worth increase during comparative two year period
HARVESTORE FARMERS
$5,287
average net worth increase two years before erection of Harvestore
Two year period after erection of Harvestore
NON-HARVESTORE FARMERS
$7,705
average net worth increase during comparative two year period
HARVESTORE FARMERS
$15,138

NET WORTH INCREASE OF ALL LIVESTOCK FARMERS

This is a composite picture of all livestock farmers in this revealing survey. Two years before one group installed Harvestores, there was only a slight difference between the net worth increases of these two groups. Look what happened two years after. The Harvestore owners' net worth increase was almost double that of the non-Harvestore owners'...proof that Harvestore owners do make more money.


Two year period prior to erection of Harvestore
SIMILAR NON-HARVESTORE LIVESTOCK
$2,415
average livestock value increase during comparative two year period
HARVESTORE LIVESTOCK
$1,961
average livestock value increase two years before erection of Harvestore
Two year period after erection of Harvestore
SIMILAR NON-HARVESTORE LIVESTOCK
$4,640
average livestock value increase during comparative two year period
HARVESTORE LIVESTOCK
$10,312
average livestock value increase two years after erection of Harvestore

LIVESTOCK VALUE INCREASE OF ALL LIVESTOCK FARMERS

There was only a two acre difference in the average of Harvestore and non-Harvestore farms in this survey, and only a $454 difference in the average livestock value of these two groups two years before one group installed their Harvestores. Look at the difference two years after. The Harvestore group increased their livestock value an average of $10,312 against $4,640 for their neighbors.

College tests show HARVESTORE processed Haylage and high moisture corn produce cheap gains

Dairy cattle produce more milk on Harvestore Haylage than on green chop—Feeding tests at South Dakota Agricultural Station show that dairy cattle produced 1.59 lbs. of milk on Haylage, compared to 1.47 lbs. on green chop (production based on 4% fat corrected milk per pound of total digested nutrients). Haylage fed cows had a body weight gain of 8.8 pounds.

18% greater return per acre from Harvestore high moisture sorghum grain—At Texas Agricultural Experiment Station a beef cattle feeding test showed that Harvestore high moisture sorghum grain gave 18% better returns per acre than dry sorghum grain. According to these test results, this would mean an extra Harvestore return of $2,390 on 250 acres.

$3.00 saving in feed cost per hundredweight of gain feeding Harvestore high-moisture ground ear corn—Purdue University feeding tests show that same gains were made from feeding 12-15% less Harvestore high-moisture ground ear corn than crib-stored ground ear corn. This amounts to a savings of $3.00 in feed cost per hundred pounds of gain.

HARVESTORE Feedlot Plans Service at your disposal

Today's big problem among dairy operators, like yourself, is to produce more milk at a lower cost of production. To do this, you must have an efficient mechanized storage and feeding operation in order to maintain bigger dairy profits.

What is the best feedlot plan for you? Why not let A. O. Smith, through their Harvestore dealer family, provide you with expert feedlot plans service. Feedlot consultants with experience in laying out completely mechanized storage and feeding systems are at your service. Your Harvestore dealer will be glad to help you.

HERE is an actual feedlot installation

Here is one of 12 feedlot plans you will find in your copy of the Harvestore Feedlot Plans Book. This is a layout of an actual installation in which the cattle barn and previous feedlot were incorporated without losing any efficiency. Dotted line shows direction of blended ration of high moisture corn and Haylage as it is augered to mechanized feed bunks. Dotted outline shows proposed location of an additional Harvestore which will be needed to take care of an anticipated expanded operation.

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White muscle disease . . .

. . . of calves and lambs has been thought to be caused by too little vitamin E. But new evidence indicates that a lack of selenium is responsible.

by E. A. Woelffer, D.V.M.

FOR many years this disease had scientists baffled. As field observations and research began to progress, vitamin E deficiency was considered a likely cause. At least, it was found to be associated with the condition.

Now, more and more evidence indicates the absence or lack of sufficient selenium in the diet may be the underlying cause. (Selenium, by the way, occurs in nature (in soil), usually in the form of a sulfide. It is highly poisonous when taken into the digestive system, except when provided in minute dosages. Extensive contact with skin causes absorption of selenium and subsequent toxic effects.)

Lung edema (swelling) will sometimes develop. This causes respiratory distress (difficult breathing). Occasionally, in advanced cases, there is a bloody froth or a blood-tinged nasal discharge.

A muscle degeneration . . .

In this disease, a degeneration of the muscle fibers occurs. Most often noted in the muscles of the hind legs, this condition also affects the muscles of the front legs and some other parts of the body.

Veterinarians and laboratory technicians recognize the lesions as white longitudinal streaks in the muscles. Sometimes the entire muscle or groups of muscles show a white or pale color.

More detailed changes in muscle structure can be seen under the microscope. While the lesions in calves are similar to those found in sheep, they more often involve some body muscles and occasionally those of the heart.

Symptoms . . .

The history of affected calves often indicates they have been dropped in the barn four to six weeks previously and have had little or no exercise. Usually they are well-grown and vigorous. When the calves are turned out in yard or pasture, symptoms of the disease appear within 3 to 48 hours.

Affected animals are stiff and walk slowly. Some calves nurse their dams with difficulty, due to paralysis or swollen tongue. Usually they are depressed, quiet, and handle with little difficulty.

Some show signs of edema or lung infection, and there may be a slight cough and rapid breathing. Most calves are strong enough to rise but walk slowly with little inclination to run and play.

An early sign of the disease in lambs is a slight difficulty in rising and following the ewe. Within three or four days paralysis gradually takes place. Starvation and exhaustion may follow which usually leads to death. If the paralyzed lamb is raised in a position to suckle, it takes milk readily.

Some lambs recover from the disease but most do not. Recovered lambs remain permanently stunted.

Diagnosis . . .

White muscle disease may readily be confused with other conditions that cause stiffness in both calves and lambs. Paralysis may develop when there is general septicemia (poisoning). Stiffness or paralysis, particularly, occurs when there are secondary centers of infection, when multiple abscesses are present, or following arthritis of the leg joints.

Pyemic infections (blood poisoning) may develop from navel ill or from wound infections after castration or docking.

Vitamin E levels of the blood appear to be low when the disease is present. Preventive treatment includes feeding wheat germ oil meal to nursing cows for a month or more prior to pasturing.

For individual treatment of affected calves and lambs, veterinarians have been prescribing alpha tocopherol before turning them out for exercise or pasture.

Selenium, given as a preventive or therapeutic agent, may become the most important element in preventing and treating white muscle disease in both sheep and cattle. More research is needed, however, before general recommendations can be given. Veterinarians in some western states have successfully fed pregnant ewes selenium at the rate of 0.1 p.p.m. (parts per million) in the ration.

Protection is provided to lambs when they are injected with selenium soon after birth. Selenium is well-stored in the body which indicates that a minute quantity of it in the feed will act as a preventive. If selenium is not given in the feed, periodic injections of it may prove practical.

A further preventive measure is to turn the cows and nursing calves into the barnyard or small paddocks for a few days before putting them in larger areas.

Infected animals should be confined and kept quiet.

What feature do you first look for in a bulk milk tank?

Is it efficient direct-expansion refrigeration/ built-in control panel/ an oval shape to hold calibration or is it stainless steel construction? Do you look for a self-contained or a remote condensing unit / atmospheric or vacuum model / 3-A standards / greaseless agitator motor or, possibly, a C.I.P. system.

We don't know any one factor that is all-important in choosing a bulk tank . . . but you will find all the above features in the Mueller line . . . they add up to high quality performance in the milk house where it pays off in profits.

Sizes range from 90 to 2000 gallons . . . see your Mueller dealer for the bulk tank that fits your operation.

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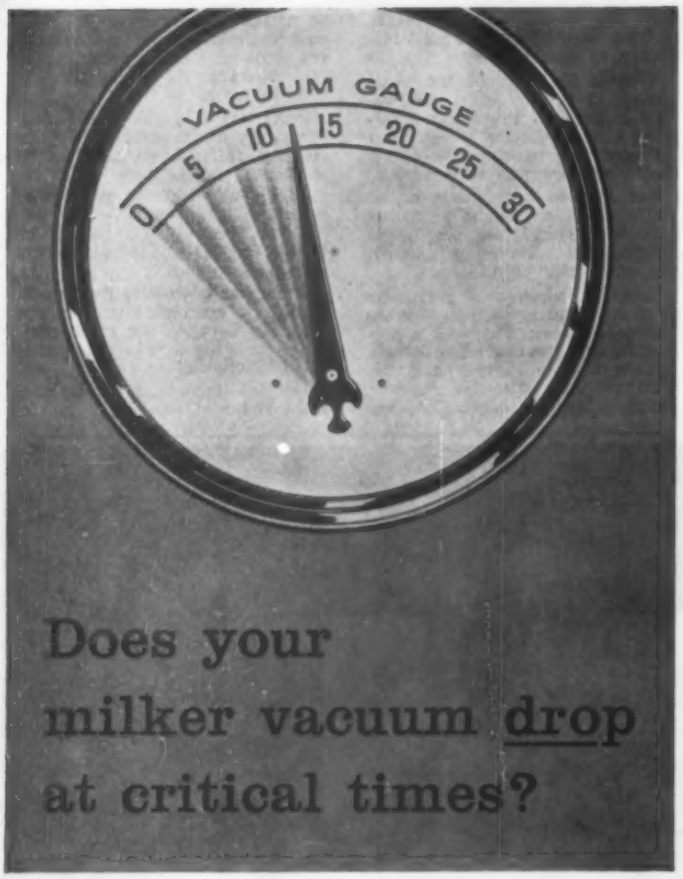
PM PAUL MUELLER COMPANY
SPRINGFIELD, MISSOURI



De Laval "Rapid-Recovery" Vacuum Pump cuts vacuum drop-offs that cause slow, erratic milking. Every time you put a milker on, there is a drop in vacuum level. Loss of vacuum at this critical time means slower milking... erratic milking. Sometimes even teat cups will fall off. And the more units you have, the more serious the problem.

There will always be some vacuum decrease when you put a milker on. But for how long? That's important! Some pumps may take a half-minute to build vacuum up to the right level on your entire line. But with a De Laval Vacuum Pump, 4-blade rotary action assures *almost-immediate* vacuum recovery. You get more milk... faster, cleaner milking with less stripping. And De Laval can *prove* it. Try us. Ask your nearby De Laval Dealer for a free demonstration.

No matter what you need, count on De Laval to make it better

Bulk Coolers
—100 through 1,000 gallon capacities
New!
Milk Transfer Unit
—low-cost way to pipe milk from barn to cooler
Narrow-Bore Liners—for fast, clean and gentle milking
New! Teat Cup Washer
—eliminates hand washing of teat cups and liners

De Laval equipment costs no more than other makes. And it's dependable—lasts longer, requires less service. But when you need service, De Laval Dealers give you the best.

EASY PAYMENT PLAN AVAILABLE

DE LAVAL
DAIRY EQUIPMENT

THE DE LAVAL SEPARATOR COMPANY
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5724 N. Pulaski, Chicago 46, Illinois
201 E. Millbrae Avenue, Millbrae, Calif.

Cut early for more milk

(Continued from page 417)

county of New York, some dairymen felt that the nutritive value of forages cut at the same time might be greater at an elevation of 1,800 feet than it would be at 900 feet because the growth stage was more advanced at the lower elevation. The county agent arranged the harvest of three samples on each of three farms in that county. We found that this limited difference in elevation did not affect the nutritive value of hays made on the three farms and fed in trials at Cornell.

7. Some specialists were reluctant to give a cutting date for their state on the basis that the growth stage at a given date varies from year to year. This is correct, but it should be kept in mind that the **growth stage is a much less accurate indicator of nutritive value than is the calendar.**

For example, in an experiment conducted at the Pennsylvania Experiment Station, four grasses were cut at the same growth stage, "when the head had emerged from the boot but had not expanded." If growth stage were a consistentiy accurate predictor of quality, the total digestible nutrient (TDN) value should have been the same for all grasses. But, the TDN values were measured and followed more closely the **cutting time.**

8. In some states, it is being recommended that a sequence of forages having different flowering dates be grown and that the harvesting times be staggered accordingly. It is assumed that since different plants flower at different times, they should be cut at different times. Some of the fallacies of this viewpoint were demonstrated in the Pennsylvania experiment. Then, too, even though balanced forage mixtures are recommended in many dairy regions, dairymen frequently grow mixtures containing both the early- and late-maturing plants.

If you have more than two mixtures to manage, you will find that much of the summer will be taken up pampering the whims of a series of forage crops. If this practice is more profitable than some other alternative, then O.K. But, dairying is complex enough without complicating it further by cutting, curing, or storing forage every day of the spring and summer. More important, there seems to be very little basis for following such a practice.

Some exceptions . . .

The exceptions involve some of the newer late-maturing varieties. Some of them (particularly of timothy and rye grass) are known to be nutritionally superior to the common varieties when cut on the same day. This superiority is due mainly to the fact that the animals will eat more of the late-maturing variety.

But, despite the fact that the plant breeder has been able to change greatly the physical nature and growth habits of forage species, the milk-producing value per pound has been improved only to a small extent. On the other hand, the acceptability to the animal has been improved greatly.

For example, in comparisons of Common and Essex timothy made at Cornell, Essex was 11 per cent superior on June 8 and 39 per cent superior on July 2. However, note this: In the June 8 sample, all of the nutritional superiority (including intake and value per pound) was due to the greater intake of Essex timothy. In the July 2 sample, 80 per cent of the superiority was because the cows ate more. These figures represent the widest differences that have been found between an early- and late-maturing variety.

Even though some late-maturing varieties make better feeds than the common varieties (when both are cut later in the season) the principle governing the nutritive value is the same. If Essex timothy is cut early, it's better than when it's cut late.

You should remember, however, that the total yield for the season is generally somewhat lower for late-maturing varieties than it is for the early-maturing ones. The yield at the first cutting may be about the same for the two kinds. But, there is a greater chance of getting one more cutting of the common variety. Plant breeders are hopeful that further research will lead to ways of improving the annual yields of late-maturing varieties.

Despite the lower annual yield of late-maturing varieties, you may have to use them in a second mixture . . . not because of nutritional or economic advantages, but for practical reasons. For example, you may need so much forage that you may not be able to cut a sufficient quantity of the early-maturing forage early enough to get high quality. In this situation, the late-maturing plants offer excellent insurance because they maintain their palatability longer. Therefore, even when cut 10 to 12 days later than common varieties, they will be about as acceptable to the cow.

Why you should cut early . . .

The milk-producing value of forage depends upon its energy value per pound and how much of it the cow will eat. Both of these qualities are highest in early-season forage but they fall off as forage matures.

Let's take an example. The dry matter in forage cut on the first day recommended for your zone will be about 69 per cent digestible, but each day cutting is delayed, this figure will decrease by almost 0.5 per cent. Thus, three weeks later the dry matter would be about 59 per cent digestible and each pound would produce only 85 per cent as much milk as it would have, had it been cut at the recommended time.

Six weeks after the recommended date, the dry matter would be only about 50 per cent digestible.

More important than digestibil-

"Instead of just passing farm bills, I wish Congress would pay some of them!"

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ity, the acceptability of forage to the cow is reduced markedly as the cutting time is delayed.

When cut at the recommended times, cows will eat forages at rates as high as 2½ to 3½ pounds of hay dry matter per 100 pounds of body weight per day. But, if you delay the cutting date 3 weeks, the cows may eat only 2 pounds. A further delay of 3 weeks may result in daily intakes of as little as 1½ pounds hay dry matter per 100 pounds body weight.

Many conditions can affect the amount of forage which cows will eat. For example, if you feed more grain, they will eat less hay and silage. Weathering or other kinds of damage which cause leaf loss result in low intakes. And, cows like some forage species more than others. Nevertheless, in experiments at Cornell University, varying the cutting time when other conditions were similar gave the trend in forare intake described.

Early cutting not only favors a high milk yield per cow, but it also results in a high milk yield per acre.

By removing the first cutting at the recommended times, you will usually get a heavier second cutting. And, oftentimes, you will get one more cutting for the season than you have been getting by cutting late. This is because there is plenty of soil moisture, and climatic conditions are usually favorable to the later growths. However, in certain areas of the country such as parts of Arizona and western Texas, soil moisture may be insufficient even for first growth.

There is no question but what you will get less dry matter per acre by cutting the first growth at the recommended time. However, you will get about the same milk production per acre with less waste in the manger.

For example, in some Cornell studies, the dry matter yield on June 1 (the recommended beginning harvesting date for most of New York state) for plants commonly grown in the region was only 70 per cent as large as the yield obtained in the first cutting made during the first week of July. Yet, milk-producing potential per acre of forage was about the same.

In addition, the earlier-cut forage was more digestible and cows consumed more and wasted less of it than of the late-cut forage. On top of this, the aftermath yield resulting from the earlier cutting was larger than that which followed the later-cutting.

Obstacles to early cutting . . .

The specialists participating in the survey itemized the following obstacles to early cutting:

1. **Unfavorable weather** was the most common obstacle listed.

In Arizona, western Texas, and parts of California and other western states, a lack, rather than an excess, of rain is a deterrent.

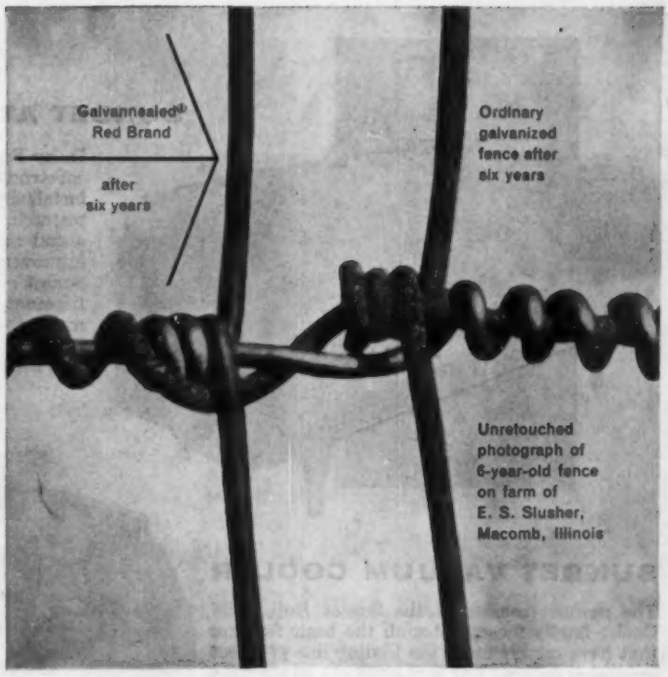
In other states, a cold spring delays forage growth. Oftentimes the weather may be satisfactory, but the fields are too wet to tolerate machinery or animals.

When fields are dry enough to take machinery, and silo space is available, grass silage rather than hay makes early cutting simpler. Should you plan to make grass silage, you will want to consider wilting. The advantages of wilted silage are:

- You haul much less water to the silo.
- There is a more pleasant odor in the silage and barn.

These advantages outweigh the

(Continued on next page)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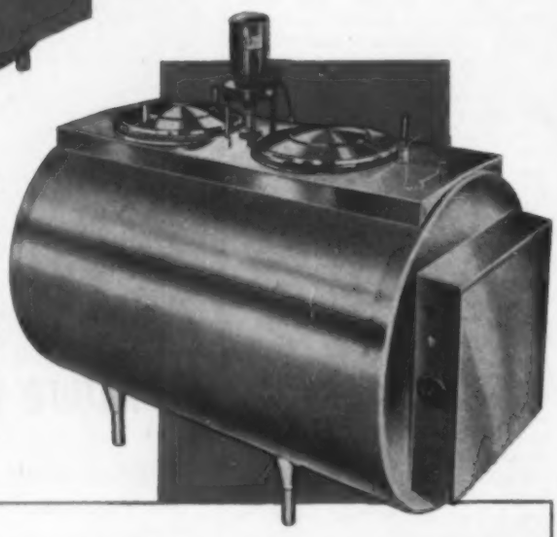
The newest member of the Sunset Bulk Milk Cooler family incorporates all the basic features that have made Sunset the leading line of direct expansion coolers. The new units are all stainless steel and have saddle-type construction. "Positive Refrigerant Control" . . . the exclusive Sunset cooling system . . . gives you the lowest possible cooling costs. The Vacuum Coolers can be used with pipeline installations or with the inexpensive Sunset Milk Conveyor dumping station or with a Milk Conveyor and barn to milk room tubing.



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(Continued from preceding page)

disadvantage of the extra trip in mowing. The opposite of the advantages of wilted silage are the disadvantages of direct cut silage.

The table on the next page will give you some idea of how severely nutritive value of forage is affected by extreme weather damage. A part of a stand of forage was cut on June 10 and another part was cut on July 8. Half of the forage cut on June 10 was heat dried and the other half was left in the field to weather. On all except two days of an 8-day curing period rain fell or water was added to the forage left in the field.

These figures show that even though weather damage greatly reduced the digestibility of the dry matter, the early-cut, weathered hay was still more nutritious than the unweathered hay made July 8.

Closely connected to the weather problem is **the problem of having too many acres to cut in the recommended 15-day cutting period** with insufficient machinery and hands to do it. This problem is more severe if you have a 100-cow herd than it is if you have only 25 cows. Naturally, hay-drying equipment and other machinery are likely to be more economical for a large operation than for a smaller one. On the other hand, the amount of hay you need may be so great that you will want to investigate other feed alternatives.

For example, if you can get 20 tons or more per acre of corn silage, chances are that this crop would be more economical, simpler to manage, and would give less headaches than any perennial crop you could grow. In addition, corn silage is very well liked by cows, has a high nutritive value, can be fed as the only forage . . . and it doesn't stink.

In some parts of the country, particularly in the midwestern and north central states, the price of energy in grains is very competitive with that of forage energy. As a consequence, dairymen in these parts of the country can usually afford to feed considerably more grain and less forage to their cows than dairymen in the Northeast. However, it's a matter of dollars and cents.

Even the Northeastern dairymen may find at various times prices of feeds such that it would be economical for him to feed much more grain than he is. Let us take the case of a herd or of individual cows that have the genetic potential to produce 14,000 pounds or more of milk. Since a high yield of milk requires a large intake of energy and stomach capacity is limited, it is possible for a high intake of forage to take up so much space in the cow's stomach that she cannot eat enough grain to get sufficient total energy.

Although it depends upon the

"The least you could do is SMILE."

Cutting date	Treatment	Digestible dry matter (%)
June 10	Heat dried (no weathering)	67
June 10	Deliberately weathered then field cured	57
July 8	Heat dried (no weathering)	52

relative price of energy in grain and forages, the amount of milk produced and its price, there are situations in which it is uneconomical to feed as much forage as the cow will consume. In general, it is uneconomical to feed forage beyond the level at which it reduces the cow's total intake of energy, assuming that she is using the energy to produce milk rather than body fat. Naturally, such situations modify the amount of forages needed on a given farm.

Another alternative that you might consider is the use of the latest maturing plants available. These should be cut no later than 10 days after the more common varieties for which dates are listed on the map. The use of these varieties means that the annual yield per acre generally will be less than that gotten with earlier-maturing varieties, but even when cut 10 days later, they will be consumed as well as the early-maturing varieties.

2. The second most commonly listed obstacle to early harvesting is **farmer resistance.** There is no doubt that the management obstacles listed here account in many cases for the dairyman's failure to cut forage early enough. However, the specialists contacted cited the following additional reasons why so much forage is cut too late: Inertia, tradition, failure to appreciate the benefits of early cutting, the desire for large tonnages of dry matter, and poor organization of the farming operation.

3. **Competition between forage crops and row crops for machinery and labor.** Depending upon the section of the country, corn and sorghum planting and cultivation and, in the southern states, tobacco and cotton operations conflict with the first harvest of forage.

4. **Difficulties connected with custom forage-harvesting operations** in certain parts of the country.

It is not the purpose of this article to sell you on the importance of forages without qualification or to argue the relative merits of forage versus grain or some other kind of feed. These things must be decided on an economic basis. It is a matter of deciding which of several alternatives will result in maximum profits.

This means deciding which alternative provides a unit of energy at a reasonably low cost and which best fits the over-all farming operation. Not always does lowering the cost result in maximum profits. In those areas of the country where corn or sorghum won't grow or where the yields are too low, common perennial forages are the major recourse. But, the profits from these will be greatest when their quality is highest.

The space in the cow's stomach is too expensive for it to be filled up with poor-quality, unprofitable feed. **THE END**

Iowa Brown Swiss average $325

Fifty-two head of Brown Swiss cattle sold for an average of $325 at the Iowa Brown Swiss Spring Sale, held at Waterloo March 22.

Top-selling animal was Norvic Mistress Poppy, 5-year-old cow consigned by Clyde and Bernard Monson, Gowrie, that sold to Thomas Wadsworth, Paullina, for $685.

Top-selling bull was O-Haven Clippers Laddie, a yearling consigned by George Opperman, Manning, and purchased for $350 by Frank Gilmore of Jefferson.

Whitlock leaves N.D.C.

Dr. Gaylord P. Whitlock, director of health education for the National Dairy Council, joined the staff of the University of California agricultural extension service, May 1, as program leader in family and consumer sciences.

The 44-year-old scientist and teacher will head a growing state-wide program to extend knowledge of nutrition and consumer economics to rural and urban California homes.

Whitlock has headed the National Dairy Council consumer education program since 1956.

Frank B. Morrison Hall

Cornell University's new animal husbandry building will be named Frank B. Morrison Hall in honor of the late professor of animal husbandry and animal nutrition. Formal dedication ceremonies are slated for September 12. The next day, a symposium will be held on "Animal Nutrition's Contributions to Modern Animal Agriculture."

The new building covers 3 acres with 133,000 feet of floor space. It includes 18 research laboratories, 5 student-teaching laboratories, 6 classrooms, offices for academic and non-academic personnel, rooms for housing small laboratory animals, equipment for slaughtering and processing the meat of livestock, and a seminar room.

According to Dr. Kenneth L. Turk, head of the animal husbandry department, the building will give sufficient space to permit the animal husbandry staff to do a more efficient and expanded job of teaching, research and extension.

Dr. Morrison, known throughout the world for his book, "Feeds and Feeding," was still head of the department when plans for the new building were begun. Dr. Morrison died in 1958, three years after his retirement.

How much is it costing you to skip a silage preservative?

your loss in nutrients and feed value is hard to measure in dollars and cents

You suffer a certain amount of loss in the feed value of your forage crop when you put it up in silage. How much depends on how far from ideal conditions are at the time of ensiling.

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Kylage with its double action works 2 ways

First, Kylage expels trapped air from the silage to stop harmful protein robbing fermentation. Then, Kylage creates the correct acidity so that beneficial natural fermentation can proceed unhampered.

Whether you wilt your crop or prefer to ensile fresh chopped grass, Kylage takes the guesswork out of making silage. Kylage has been proved by years of on-the-farm use. It has been tested by most State Colleges as well as the U.S.D.A. Experimental Station at Beltsville, Md. Ask your County Agent about Kylage reports.

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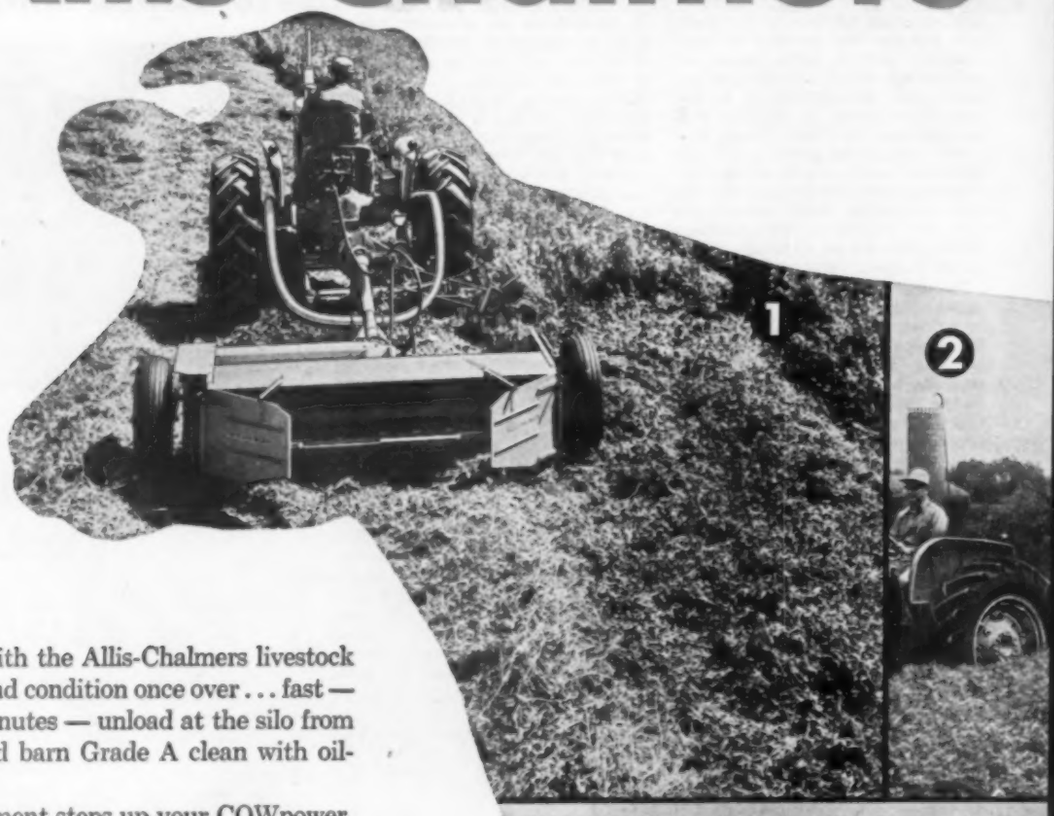

LOOK what one man can do with the Allis-Chalmers livestock line of power equipment — mow and condition once over . . . fast — chop and load tons of forage in minutes — unload at the silo from the tractor's seat — keep lots and barn Grade A clean with oil-smooth convenience.

No wonder we say this equipment steps up your COWpower. Find out how many more cows you can handle by having the latest in power equipment. Your Allis-Chalmers dealer will be glad to show you . . . in your neighborhood . . . when hay and forage are available. Ask him now.

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2 New Flail-Cut Forage Harvester and Allis-Chalmers Power Wagon

New Model 56-F Forage Harvester cuts . . . and recuts . . . four times per revolution . . . to give you a new kind of clean-cutting action in flail-chopped feed. Six-foot-wide and big-tractor tough, the 56-F handles standing grasses, windrows, straw or stalks. New Power Feed Wagon Box comes in 3 sizes up to 518 cu. ft. capacity. Makes silo filling or bunk feeding fast and simple.

3 Cut-and-Throw Chopper

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4 New Allis-Chalmers Parallel Bar Rake

"Lift and Lay" action in new Allis-Chalmers ground-driven parallel bar rake builds fluffy, airy windrows without roping hay. Leaf-shattering hay movement is at a minimum. Also available as a fully mounted, power-driven model.

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Manure moves fast, oil-smooth, with the Allis-Chalmers low-line, front-end loader. Power Director gives you oil-cushioned, hand-clutch action, easing into the load gently . . . lifting easily, smoothly. The new 95-G Spreader is built to last and last. Look at the places spreaders usually wear out. You'll find a new kind of quality construction in this Allis-Chalmers spreader for new long life, continuous good performance. Ask your Allis-Chalmers dealer to show you.

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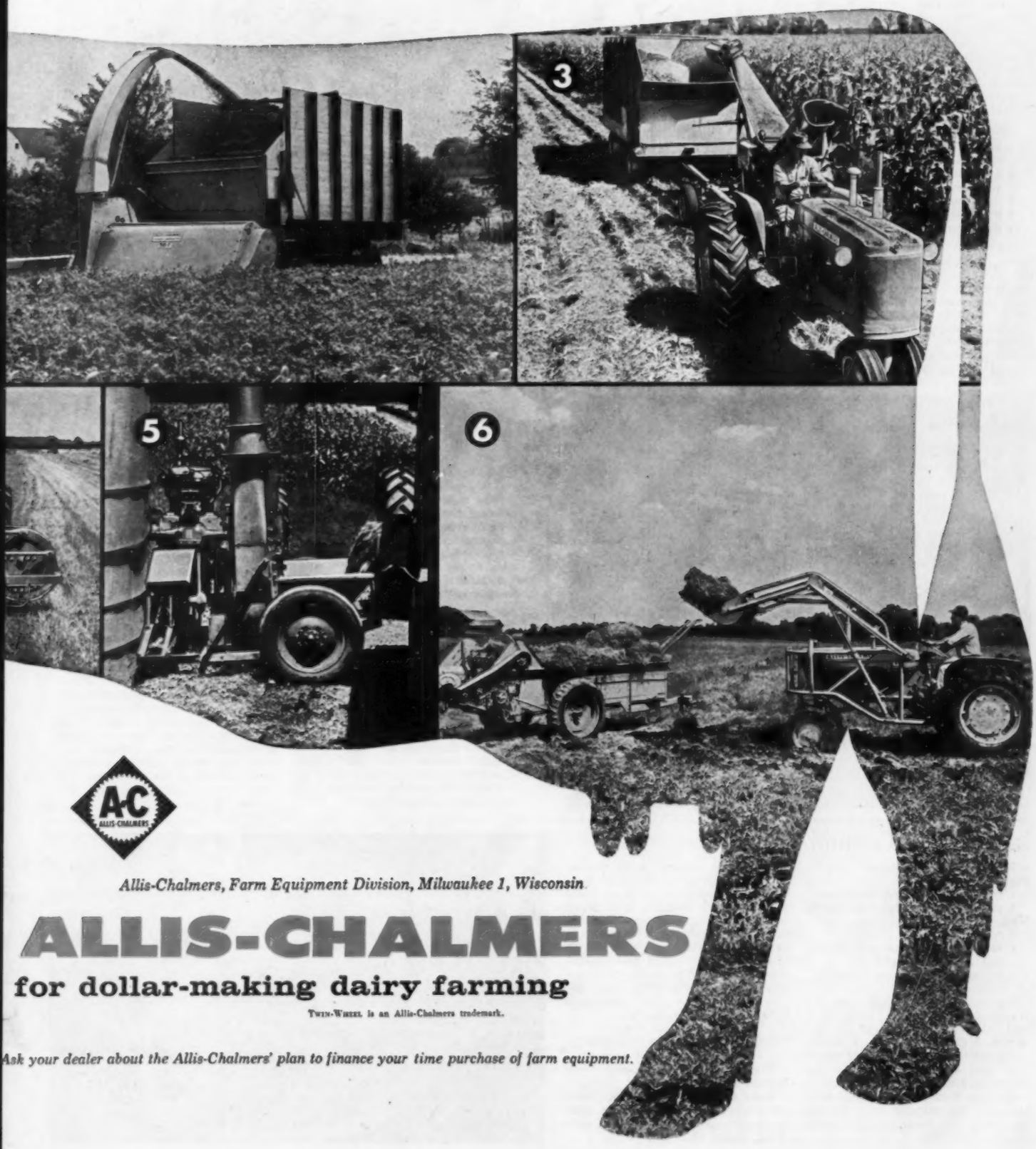

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DAIRY FARM HOME

Easy as pie!

THESE are some pies that are a little different from ordinary. To the right is one that is made with puff pastry. At the bottom of the page is a coconut crust. And directly below are tart shells, a variation from the usual 8- or 9-inch pies. These can be made from your own master pastry mix, as it was given in the January 25 Dairy Farm Home page. Use about 2 cups of the mix for the six tarts.

Just as delicious are these easy variations of familiar pastries.

by Marian Pike

Pineapple Open-faced Tarts

1 can (#2) crushed pineapple
½ cup brown sugar
2 tablespoons cornstarch
⅛ teaspoon salt
2 tablespoons butter
6 pre-baked tart shells
½ pint heavy cream, whipped

Mix sugar, cornstarch, and salt. Drain pineapple thoroughly and to the syrup add sugar and cornstarch mixture. Cook over low heat until thickened and clear, about 5 to 8 minutes. Add butter and drained pineapple and stir until blended. Cool. Spoon into the 6 baked tart shells; top with whipped cream; and garnish with cherries.

Glazed Cream Puff Pie

1 package vanilla pudding and pie filling mix
2 cups milk
1 baked 9-inch puff pie shell, cooled
1 cup boiling water
1 regular size package raspberry-flavored gelatin
8 to 12 ice cubes
1 banana
Sweetened whipped cream

Combine pie filling mix and milk in saucepan. Cook and stir over medium heat until mixture comes to a full boil. Cool only about 5 minutes, stirring once or twice. Pour into puff pie shell. Chill.

Dissolve gelatin completely in boiling water. Add ice cubes and stir constantly for 2 to 3 minutes, or until gelatin starts to thicken. Remove unmelted ice.

Slice banana over pie filling. Cover with gelatin. Chill until set—about 30 minutes. Garnish with sweetened whipped cream.

To make puff pie shell, combine:
¼ cup butter and
½ cup boiling water

Bring again to boil in saucepan. Reduce heat, and add:

½ cup sifted flour all at once, stirring rapidly.

Cook and stir until mixture pulls away from sides of pan in smooth compact mass; takes about 2 minutes. Remove from heat.

Add **2 eggs**—one at a time, beating thoroughly after each. Then beat steadily until mixture is satiny and breaks off when spoon is raised.

Spread dough evenly over bottom and sides of a 9-inch pie pan and pile remaining dough around rim. Bake in hot oven (425 degrees) 35 minutes. Remove from oven and prick bottom and sides with a fork. Bake another 5 minutes, or until dry and crisp. Cool before filling.

Coconut Crust Pie

½ cup granulated sugar
1¼ cups water
1 cup fruit, chopped or ground
1 package orange-flavored gelatin
Dash of salt
2 egg whites
4 tablespoons granulated sugar
¼ cup cream, whipped
1 baked 9-inch quick coconut crust

Combine ⅛ cup sugar and the water in saucepan and bring to a boil, stirring until sugar is dissolved. Add fruit (fresh or frozen cranberries, dates, raisins, or whatever you choose that is not too juicy) and simmer 5 minutes.

Remove from heat and add gelatin and salt, stirring until gelatin is completely dissolved. Chill until slightly thickened.

Beat egg whites until foamy throughout. Add 4 tablespoons sugar, 2 tablespoons at a time, beating after each addition until sugar is blended. Then continue beating until this meringue will stand in soft peaks. Fold whipped cream into slightly thickened gelatin mixture. Then fold in meringue. Pour into quick coconut crust. Chill until firm. Garnish with sweetened whipped cream, as desired.

Quick Coconut Crust

Combine **¼ cup butter, melted**
2 cups flaked coconut

Press evenly into an unbuttered 9-inch pie pan.

Bake in slow oven (300 degrees) for 30 to 35 minutes, or until golden brown. Cool. To serve, fill with fruit filling; chill until firm.

From Day to Day

by Lois J. Hurley

ARE you one of the increasingly few farm families who still own a horse? Loving, willing friends and helpers that they were, they are swiftly becoming victims of automation; the last census gives them a startling down-grade in numbers.

I knew their doom was foreseeable. One of the last years that I was on the staff of a state farm paper, I took a beautiful spring plowing picture with the farmer following a fine team of horses across the fallow loam, turned it in to the editorial desk, along with a pastoral caption. It was rejected and a tractor-drawn vehicle substituted. The machine age cometh!

The two rugged farm horses that I grew up with will live forever in my memory. They were Bird, a spirited roan that was really a dual-purpose horse, and black, plodding Dan that wasn't anything but a work-horse, and gave himself up rather ungracefully to saddle, when I chose him for my country gallops.

Believe it or not, I traveled the countryside by horseback, in my youth, for want of better transportation. I remember a great group of boys and girls who rode horseback to school and Sunday School and other outings. I could catch a horse, bridle and saddle it, and ride at trot, pace, and gallop.

It is a sad thing that children and young people no longer have any contact with horses. I believe my child has been in close contact with a horse only once. One spring we were down in Missouri at my mother's place when they were plowing gardens in the little hill town where she lived and a neighbor gave Kathy and the girl friend who had gone south with us, a ride. Allergic to all forms of animal hair, Kathy has never been able to frequent riding stables, so she has neither a social nor utilitarian acquaintanceship with horses. I think she has missed a great privilege.

College ahead?

Parents of boys and girls who will enter college in the next few years really face a problem. How much will it cost? How will the fees have to be paid? Will my child win a scholarship? Is he, or she, strong enough physically and scholastically to hold down a job? Is there any merit in Federal Aid?

At my state's university (Wisconsin) tuition now stands at $220 a year, with room and board in public and private dormitories ranging from $700 to $1,375. The average student spends $1,550 a year at college, a recent study showed.

Broken-down, the national figures showed that parents contributed the greater part of this sum, $950. Around $130 came from scholarships; the student earned about $350 and the rest came from loans. And, of course, clothing, incidental expenses, recreation, and so forth, do not show up in that over-all figure of $1,550.

I'll have a child ready for college (I hope) in three years. To what heights will expenses have soared by then? And, will a state institution be right for her or should she enter a smaller college where costs can be double that of state universities? It will take some steeling on my part to send her out, barely 18, into the great maw of 20,000 students on a state U campus; probably more, by then. Only the fittest survive and is she among them?

In Wisconsin, the state university has done a splendid job of decentralizing and established two-year extension centers which answer a very real need and purpose. The quality of teaching is excellent; enrollment is low enough to be individual but large enough to be stimulating; and costs are very much less because the student can live at home.

One is right-at-hand to us, and a fine new building to house it is on the drawing-boards. Of course, extension centers lack the glamour of campus life and it's pretty old-hat to children just to "stay at home forever and keep on going to school," to quote a few of them. But there's a lot of merit, there, which out-weighs the drawbacks. We shall see.

Watch the color . . .

Whether or not a garment is to be washed by machine or by hand; whether or not you may use bleach and if the garment is dry-cleanable only may be indicated soon on ready-mades by the use of colored hang tags. Any manufacturer who wishes to pass this useful information along may adopt these voluntary labeling standards.

As set up, a purple tag marked "160" and "B" means the garment can be bleached and washed in 160-degree water. A green tag indicates the garment is washable but cannot be bleached. The "160" appears with a "W" on the tag.

A blue tag indicates the garment is washable in a machine in lukewarm (120-degree) water without bleach. Yellow tags indicate hand-washable garments without bleach in cool (105 degree) water. Red tags mean garment is to be dry cleaned only.

Remember, this is only a voluntary program and you may not find colored tags in all places. Such consumer-protective programs often grow slowly.

Housecleaning tips . . .

More and more, women are getting away from the turn-the-house-upside-down type of once-a-year house-cleaning and taking a steady routine of jobs, the year round, so that things are never in really bad state. There are still some things we will always do in the spring, though, and that's wash the bedding and hang it out on the line, if possible, on a warm, soft, blowy spring day.

A question often asked is how to wash electric blankets in automatic machines. Here is how one of our state home management specialists recommends it be done:

Prepare a good suds of warm water and detergent in your washer. Detach the cord and control unit and put the blanket into the suds. Let it stand without the machine running for 15 minutes, turn and let stand another 10 minutes.

Let the water spin off, then put the blanket through several rinse waters, agitating only as much as necessary. Have someone help pull the clean blanket gently but firmly both crosswise and lengthwise. Hang across several lines so blanket can air-dry quickly.

8174. Practical, attractive togs for summer playtime—just what every junior adores. Tailored shirt and shorts in two lengths. Sizes 9, 11, 12, 13, 14, 16, 18. Size 11, 31½ bust, shirt with sleeves, 2⅛ yards 35-inch; below-the-knee shorts, 2⅛ yards. Price 35 cents.

8183. As bright and shining as a new dime is this adorable sundress-culotte outfit. Sizes 10, 12, 14, 16. Bust 30 to 36. Size 12, 32 bust, 4¾ yards of 35-inch; ½ yard contrast. 35 cents.

8179. Headliner for spring is the striking jacket that goes so well with skirts or sports clothes. This one has a slim skirt included. Sizes 10, 12, 14, 16, 18, 20. Bust 31 to 40. Size 12, 32 bust, jacket, 1½ yards 35-inch; skirt, 1⅞ yards. Price 35 cents.

8198. Neat as a pin and so wearable. Brief-sleeved daytimer that goes together 1-2-3! A half-size special. Sizes 12½, 14½, 16½, 18½, 20½, 22½, 24½, 26½. Bust 33 to 47. Size 14½, 35 bust, 5¼ yards 35-inch. Price 35 cents.

8211. Particularly becoming to the slightly mature figure is this well-tailored two-piecer that is as versatile as you could wish. Sizes 36, 38, 40, 42, 44, 46, 48, 50, 52. Bust 38 to 54. Size 36, 38 bust, 6⅛ yards 35-inch. Price 35 cents.

8233. Thrifty sewing for small fry — puffed sleeve dress and slip for sister, romper for brother. Sizes 6 months, 1, 2, 3 years. Size 1, dress, 1¼ yards 35-inch; slip, ⅞ yard; romper, 1 yard. Price 35 cents.

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POULTRY

by Joe W. Sicer

The luxuriant louse

Only 10 can become 24,000 in just 14 weeks! And egg production can drop 26 per cent. It can happen to your flock.

IN A [illegible]-l flock, 60 pullets were [illegible] lice each, according to a report in the Journal of Economic Entomology. Another 60 birds were given no lice. Records on egg production for the two groups were kept for 14 weeks.

The lice were multiplying rapidly by the end of the fourth week. During the last 10 weeks, egg production from the lousy birds averaged 26 per cent below that of the birds free of lice. During the 14th week, egg production was off 84 per cent compared with the louse-free group.

At the end of the test, two birds from the infested group were placed separately in a tight box and dusted to kill the lice. Someone had the fun of counting 24,627 lice from one hen and 21,500 from the other!

It hardly seems possible one bird could harbor that many lice but you can't deny an actual count under such conditions.

True, the birds in cages had no opportunity to dust themselves so the lice were free to multiply almost unmolested. The trial serves as a dramatic warning, however, of what can happen if you do not keep a close check on your birds and act as soon as any lice are seen.

Both lice and mites reproduce more rapidly in warm weather than during the winter. Warm days of spring, therefore, should be a reminder to examine your birds closely for lice or northern fowl mites. And check perches for signs of chicken mites.

To each his own . . .

Lice commonly found on poultry and all other birds are known as chewing or bird lice because they have chewing mouth-parts (in contrast to the sucking mouth-parts of chicken mites) and, with few exceptions, attack only birds. These lice spend their entire life cycle upon the fowl and are never found elsewhere, except by accident.

They feed upon scales and dried portions of skin at the base of the feathers. They have six legs covered with spiny hairs, and each leg ends with sharp pointed claws. If a louse accidentally gets on you, you get a mild version of the irritation these legs can cause a hen. Try to imagine several thousand of them scurrying around competing for food. No wonder, when infestations are heavy, hens become nervous, lose their appetite and vitality, and drop in eggs.

Turkeys are less susceptible to lice than chickens, but two species that feed on chickens also attack turkeys. In addition, turkeys have two other species of their own. Ducks and geese have their own particular kinds of lice.

Sparrows, pigeons, and other wild birds that may get inside the chicken house have no bearing on the chicken louse problem because the lice found on these birds are of still different kinds and do not attack chickens or turkeys. Such free flying birds, however, may be mechanical carriers of various poultry diseases and, therefore, should be kept out of chicken houses by covering all openings with wire netting.

Several preparations can be used successfully to get rid of chicken lice. One of the simplest to use is a malathion spray.

A 3 per cent malathion spray can be made by mixing 15 ounces of a 25 per cent malathion wettable powder with 1 gallon of water. If a 50 per cent wettable powder is used, only 7½ ounces will be needed per gallon of water.

This mixture can be used as a roost paint or it can be sprayed on the roosting area. In slat floor houses, the entire slatted area should be sprayed. One good treatment should be enough.

The old stand-by, 40 per cent nicotine sulphate, is still an excellent louse controller when used full strength as a roost paint just before time for the birds to take to the perches. It is not a one-shot treatment. A second treatment, 10 days later, is needed to get the lice that hatch from eggs already on the bird at time of treatment.

With flocks in roostless houses, or those that do not use the roosts as they should, it is better to use a 4 per cent malathion dust over the litter. Damp or caked litter should be loosened and dried, or covered with fresh dry litter before treatment. Apply 1 pound of the 4 per cent malathion dust per 40 square feet of litter area. Distribute it as evenly as practical using a puff or a rotary-type hand duster. **Avoid direct application of the dust to water or feed.**

With birds in cages, either the dust or spray method can be used. Direct the material at the birds in such a manner as to avoid the feed and water.

Northern fowl mites . . .

The northern fowl mite is not a louse but is often mistaken for one since it is found on chickens.

These mites congregate near the vent, tail, and neck. Feathers under the vent often become soiled. The northern fowl mites differ from lice in that they suck the chicken's blood. Scabs often form on the skin of infested fowl. The mites are much smaller than the common body lice of chickens. They look much like the roost mite but, unlike that mite, they do not leave the chicken during the daytime to hide in the cracks around the roosts.

Control for the northern fowl mite is similar to that for the chicken louse, except repeated treatments often are necessary. In stubborn infestations, especially in cage layers, individual treatments may be needed.

But, remember, that either lice or northern fowl mites can knock egg production in a tizzy if you let them get bad. Don't give them a chance this spring. Get after them at once. The 10 you see now may be 10,000 in 10 weeks.

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ARTIFICIAL BREEDING

Daughters of Jessup sires to be tested for solids-not-fat

by H. A. Herman

WITHIN the next year, Roger Jessup Breeders, Artesia, Calif., hope to advise their customers of the solids-not-fat content of the daughters of Jessup sires. The California stud recently inaugurated a plan to test the milk of the daughters of their sires used in artificial insemination by using their large 1,000-cow herd at Glendale.

In correspondence with us, the Jessup organization stated, "Like most people in the industry, we have wanted to learn more about the solids-not-fat content of milk and the inheritance of it. We held back some years to see what type of practical tests for determining solids-not-fat would be developed. There are several promising methods but, after checking with Washington State University and with the people at Colorado State University, we have adopted the Golding bead test."

This test was developed by Dr. N. S. Golding, formerly professor of dairy manufactures at Washington State University. It is a simple, practical test measuring the specific gravity of milk by utilizing beads of varying weights immersed in a suitable tube of milk. From a few simple observations, the solids-not-fat can be determined.

Ben Simonson, sire analyst for Jessup Breeders, reports, "The Jessup Certified Farm at Glendale provides excellent facilities for carrying on these studies. We are milking 800 Holsteins and 200 Guernseys. This operation has carried on a sire proving (and reproving) program for many years. We are also fortunate in having well-trained and experienced laboratory personnel and an excellent research man in "Mike" Mena, who is in charge of the milk quality laboratory on the farm.

"We believe our present test for solids-not-fat will prove simple enough and accurate enough for the DHIA Central Laboratory to incorporate it into their program before too long.

"In the meantime, we will have obtained a great deal of valuable information on solids-not-fat content of the milk of individual cows and, subsequently, this information can be included in our sire proofs.

"To date, we are only running the test on our purebred strings, numbering about 200 cows, but we hope to include entire herd soon."

This development should be of interest to the entire dairy cattle breeding industry. Dairy processors, dairy producers, dairy scientists, and health authorities are interested in the solids-not-fat content of milk. Numerous artificial breeding organizations are supporting research at agricultural experiment stations to study the problem of milk solids-not-fat as it is technically known. In time, it is expected sires will be, to some extent, appraised on the nonfat solids contained in the milk of their daughters.

We have learned a great deal in recent years about the effect of breed, environment, and genetics on the constituents of milk. Most authorities agree that milk may be merchandised on the basis of its "solids" or even on protein content.

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Silotracin's antibiotic disappears before silage is fed, so there's no residue in feed, no trace in milk (no FDA approval is required). It doesn't irritate eyes, nose or throat, won't harm equipment.

Ask your dealer for a silage preservative that contains Silotracin, or for Silotracin itself. Both cost no more than ordinary preservatives. Remember though, as good as Silotracin is, it's no substitute for good silage practices and management.

The use of Silotracin for silage preservation is covered by U.S. Patent 2940857.

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CHOPPING ONE FULL LOAD daily for a herd of 30 cows or less is more efficient than chopping two half loads, according to tests.

Shall I chop once or twice daily?

Once-a-day harvesting works out well in small herds. Ohio tests show very little difference in milk production or in body weight.

by A. D. Pratt and R. R. Davis

AN EXPERIMENT covering 111 days was conducted at the Ohio Agricultural Experiment Station with 18 Holstein and 18 Jersey cows divided into 6 comparable groups.

Three groups were fed alfalfa-brome cut fresh twice daily. The other three were fed from the same field cut once daily but fed twice. They were fed at about 8 a.m. and 4 p.m.

The three levels of grain feeding were (1) no grain, (2) quarter grain (0.1 pound of grain per pound of milk above 20 for Holsteins and 0.125 pound of grain per pound of milk above 12 for Jerseys), and (3) half grain (double this amount).

The cows calved in February, March, and early April. The average production of the Holsteins was 49 pounds of actual milk for the three days before the feeding experiment began, while 8 were producing above 50 pounds.

Soilage carried over from the morning to the night feeding (8-hour period) showed an average increase of 17.3 degrees, while that carried from the night to the morning feeding (16-hour period) showed a rise of 31 degrees. The greatest average rise in the temperature for a 2-week period was 38.2 degrees, in late July. For 16 different days the temperature averaged 124 degrees, while the highest was 128 degrees.

No difference in intake . . .

The green feed was weighed in to each individual cow and refusal was weighed back. Dry matter content of grass and refusal was determined and individual daily dry matter intake was calculated. The average daily dry matter intake for the entire experiment was the **same** for once daily or twice daily chopping.

The cows fed grass cut twice daily averaged 30.3 pounds of 4 per cent milk daily while those on once-daily cutting produced 29.3 pounds. This difference can be expected with normal variations within these comparatively small groups.

Grain gave good response . . .

Cows fed no grain and the "quarter" grain rate produced more milk on soilage cut twice daily but the differences were not significant. Grain feeding met with a significant response — 5 pounds of milk daily for "half" grain level.

Chopping once or twice daily had no measurable effect on weight changes, both groups losing about the same amount of flesh during the experiment.

Even though a distinct preference was shown by the cows for freshly-cut grass-legume, the differences in dry matter intake and milk production are not greater than would be expected to occur by chance.

According to these results, if the herd is small so that only one load is required, once-a-day harvesting is justified. Undoubtedly once-a-day harvesting would be more efficient in use of man and machine hours and makes soiling practical for small herds.

There is no future in any job. The future is always in the worker who holds that job. —Geo. W. Crane

The authors are members of the department of dairy science at the Ohio Agricultural Experiment Station, Wooster.

Treatment	4% F.C.M.	Daily dry matter intake: Forage	Grain	Total	Weight change
	lbs.	lbs.	lbs.	lbs.	lbs.
Cut twice					
No grain	27.5	28.7	0.0	28.7	-26
Quarter grain	31.2	29.4	2.0	31.4	- 4
Half grain	32.3	28.4	3.8	32.2	-26
Average	30.3	28.8	1.9	30.8	-19
Cut once					
No grain	25.3	29.8	0.0	29.8	-21
Quarter grain	30.0	28.9	1.9	30.8	-10
Half grain	32.7	27.9	4.0	31.9	-39
Average	29.3	28.9	2.0	30.8	-23

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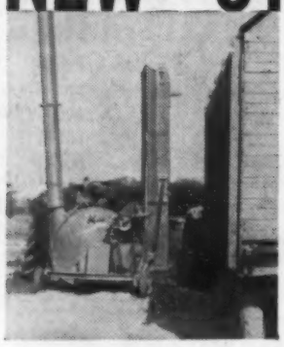

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Mow drying . . .

(Continued from page 419)

ter color than field-cured hay. Hay that is baled early while damp reduces the possibility of rain and dew damage, reduces sun bleaching, and reduces leaf loss both at the pickup and at the bale chamber, as well as in the hauling operation.

Any consideration of individually-designed hay driers brings up a lot of questions, some of which can be answered quite definitely and others, the answers depend on many factors. We will cover a group of these questions, hoping that our answers based on 15 years of research and experience may give you some assistance in the direction to take and in the design of a satisfactory system for your needs.

Heated or unheated air?

A drier using heated air has greater capacity than a comparable unit without air-heating equipment. The capacity of a heated-air unit is affected very little by weather conditions. An unheated-air system may have its drying capacity reduced to zero during a rain.

Both the initial cost and the operating costs of a heated air system are higher than the unheated air or plain "fan" system.

Approximately 1 ton of hay per hour or 20 tons of hay per day is a reasonable capacity to expect from a good-sized, heated-air system in continuous operation with a 5- or 7½-horsepower motor. On the average, 3½ to 4 tons of hay per day are what you can expect from unheated air on continuous operation 24 hours per day 7 days a week. Motors of 10- to 15-horsepower would double capacity but ducts and fans would have to be larger. Electric, motor-driven, unheated-air, barn-drying systems usually run with little supervision so can be expected to operate 7 days a week.

What does it cost?

The cost depends on how wet the hay is, how fast you want to dry it, and how efficient the system is. Most inefficiency is the result of air leaks or air going through blow holes or tunnels in the hay. On a well-designed system with unheated air, the average cost of finish drying chopped hay from 30 per cent moisture (which is damp enough to prevent leaf shattering) to a safe storage moisture content of 20 per cent, or less, usually runs from $1 to $1.50 per ton. With a heated-air system, add about $1 per ton, and for baled hay, add another $1. The average hay quality is, as a general rule, just a little better because of faster drying,

Is there any danger from spontaneous combustion?

In a properly-designed-and-operated system the danger of spontaneous ignition and subsequent combustion are practically eliminated. As long as the fan continues to force air through the hay at even a fraction of the normal design rates, the hay will not heat. This is true even if it is raining and there is no drying taking place. Anytime the hay is drying, the temperature is lower than the air temperature. We have experienced power failures of several hours with damp hay on a drier with no serious consequence.

What type of duct system?

A barn drying system is tailor-made to the barn so there is no single "best" system. Some types,

(Continued on next page)

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(Continued from preceding page)

however, are more suitable for certain applications. The central, open-top duct system with a slatted floor extending to about six feet from the barn wall is the most universal system and can be adapted to most barns. Actually, this system is an improved version of the old original closed central duct with numerous low lateral distribution ducts.

If, instead of a central duct, it is necessary to use a side-of-the-barn duct, then this duct should not have an open top. It should be tightly closed but the slatted floor is essentially the same as in the other system.

The various vertical duct systems are also modifications of the original system. The main advantage in these vertical ducts is in deep mows. There is some disadvantage in having to walk on damp hay to adjust them and some of them leave treacherous holes in the mow. The A-frame system was developed for the narrow mows of the Pennsylvania or Eastern-type barns with a maximum mow width of about 20 feet. Commercial versions of this system are now modified with stub laterals to adapt this system to wide mows.

What size fan and duct?

The size of the duct is determined from the fan size. The fan depends on the mow size and the power available. If you divide the mow floor area by 200, this equals the desired motor horsepower for a barn drier, and if you multiply the motor horsepower by 3, you get the cross section area of the main duct in square feet. Fan capacity runs about 10 to 15 cubic feet per minute per square foot of mow area. For example, assume a mow is 34 feet wide and we wish to dry hay in 48 feet of the mow length. Calculations: 48 times 34 equals 1,632 square feet. This figure, 1,632, divided by 200 equals 8.16 horsepower (desired). Under these conditions a 7½ horsepower motor on the fan would be satisfactory, and it might be the maximum size allowed on the electric line. With 7½ horsepower on the fan, the cross section area of the main duct should be 7½ times 3 or 22.5 square feet. The duct probably would be built 4 feet wide and about 6½ feet high on the inside (26 square feet). Standard lengths of lumber can be used for framing a duct of these dimensions. The vertical studs would be 14-foot 2 x 4's cut in two, and the cross ties would be 10-foot 2 x 4's cut in two. If it had been permissible to use a 10 horsepower motor, the duct normally would be built either a foot higher or a foot wider.

As a rule, main ducts are built oversize, high enough to walk through comfortably and about 4 feet wide. Rather complete plans for building barn hay driers are available (see editor's note).

Can we use two 7½-horsepower motors and fans on one system?

A drying system will operate very well with two separate but similar fans putting air into the same duct system. Sometimes this is done where the maximum size of motor allowed on a power line is not large enough to supply the air needed by a large system. However, this should be checked with the power supplier as there may be other limiting factors, and someone with considerable experience or training should be consulted on the system layout.

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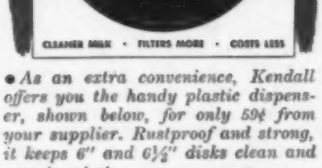

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this in laying out the system. That is one reason for using a central main duct and a slatted floor, if the hay chutes are along the side of the barn, or a side duct if chutes are in the center.

How fine should mow-dried hay be chopped?

This used to be a problem because the early choppers cut the hay too short and it was harder to dry. The longer the cut, the easier the hay is to mow dry. A three-inch cut is a fair average. Hay cut to this length dries well and does not give too much trouble in blowers, and also handles fairly well.

What are the advantages of batch drying buildings?

Batch drying buildings have the advantage of being designed for drying so the capacity can match the farm's maximum daily harvesting capacity of hay, small grain, or corn. These buildings are designed for good efficiency so the operating cost is held low and the original cost can be distributed over three crops instead of one or two.

What are the advantages of batch drying wagons?

Batch drying wagons are the most mobile of all drying equipment and can be purchased complete and ready to operate. Wagon drying has the same versatility as the drying building; any farm crop can be dried. The crop can be harvested directly into the wagon, dried, and unloaded from the wagon for storage. Conveyors should be used for unloading dried hay. The drying efficiency on most crops is reasonably good. Connecting ducts for multiple wagons are available, and if enough wagons are used an all-night drying operation can be carried on.

Can we get more leaves in the barn and what is the protein content of hay dried artificially?

Using any of the three drying methods, a careful operator can get, on the average, better hay than is possible by complete field curing, in an average haying season. He will have hay with more leaves, higher protein, and the cows will like this hay better, and give more milk with less grain supplements. Just how much better the hay will be depends on his skill and judgment and how bad the haying season happens to be.

THE END

NOTE: If you are planning to build your own hay mow drying ducts we suggest you request a copy of Bulletin 505; "Mow Hay Drying," from Hoard's Dairyman Plan Service Department, Fort Atkinson. (Price 25 cents.)

This bulletin gives you information on moisture control of hay; density of hay; the drying process; installation standards; portable drying units; plans for a slatted floor with an open top main duct system; how to build the system; the two-level system; and adjustments for varying conditions.

—THE EDITORS

Hoard's Dairyman Plan Service
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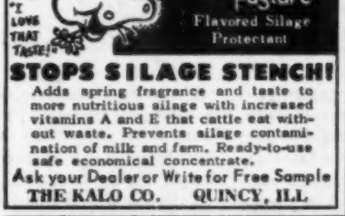

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YOUNG DAIRYMEN — *Getting started in dairy farming* — No. 21

They produce 33 pounds or go

That's the breaking point between profit and loss on Lowell Wilhoit's farm. He won't tolerate "boarders."

by P. A. Woodul

MILK METER TELLS STORY of how each cow is producing at every milking. Lowell and Maxine watch the pounds add up in their four-unit, seven-stanchion milking barn.

"IN THE present day cost-price squeeze, I cannot take a chance on low-producing cows. My last bull was proven and helped my herd, but the two before that almost put me out of business," so stated Lowell Wilhoit, a young dairy farmer of the Portales Valley in eastern New Mexico.

Lowell is a member of a farm family of six boys and seven girls. The father moved his family to Portales in 1938 where he has continued as an active farmer. Later Lowell rented land from a neighbor on a 50-50 basis to get his start.

This rented land was planted to sweet potatoes from which a part of the net income was used to buy a family truck and the remainder to buy two dairy heifers as a part of his vocational agriculture farming program.

Agriculture in high school made slow progress in competition with active participation in football, basketball, and softball. However, it took a sudden surge when he and Maxine were married.

Saved army pay . . .

Soon after his marriage, Lowell was called into the armed services. "Maxine made her own way while I was in the Army. Therefore, all the money I sent home could be banked. She made a real hand during this time just as she has done every day since."

In 1949, Lowell took the accumulated money from his army pay and bought his first tractor, enrolled in a G.I. farm school, and borrowed money from his father-in-law to purchase a neighbor's farm. Lowell sets the present value per acre at $300. The farm was a 120-acre, irrigated farm with its growing crop. The equipment for operating the farm was included in the purchase. This financial obligation has been cleared, but at the present time an underground concrete irrigation pipe is financed by a local bank.

Using current approximate figures, Lowell's financial statement would look like this:

120 acres of irrigated land	$36,000
16 head of replacements	1,600
85 head of milking cows	21,250
1 dairy barn with feed mixer and sheds	1,400
1 green chop feed wagon	1,500
2 ensilage cutters (1 with green chop attachment)	4,000
2 trucks	2,000
2 tractors with attachments	10,000
1 pickup truck	1,500
1 car	1,500
	$80,750
Liabilities	$22,000
Net financial worth	$58,750

Lowell and Maxine are presently planting 90 acres to silage crops. The 14 acres of allotted cotton and 10 acres of allotted peanuts are rented to a brother-in-law. Labor competition for working and harvesting these crops along with dairying made it necessary to decide which must be dropped. "There just were not enough hours in the day or days in the week for all the work."

Milking 85 . . .

The present milking herd is made up of 85 cows and 16 replacements. A few Jersey-Holstein mixtures and straight bred Shorthorns remain in the herd from his early beginning in dairying when the majority were Shorthorns. However, this combination of milk and beef has been replaced by strictly fluid milk production, and Holsteins are now used almost exclusively in the herd.

The large number of replacements allows for a 25 per cent cut in first-calf heifers and an additional culling of older cows that do not hold up to a 33-pound daily lactation average, which the operator feels is the breaking point between profit and loss.

Production records are kept systematically with the use of a milk meter. So far, his top-producing cow made 21,000 pounds milk at 8 years of age followed by a first-calf heifer on a 2x, 305-day test that produced 17,000 pounds of milk.

These few isolated high individuals look good but Lowell has hopes, through proper feeding, careful breeding, and good management to bring his herd average above the present 33 pounds.

Lowell culls the herd hard in December and January. Then he buys back to help establish fall production base. He could use a 20 per cent herd increase to arrive at the base.

Lowell feels that Holsteins are better keepers, fit into his volume production better and non-replacement calves find ready sales on the open beef market. He is now using artificial breeding on cows planned for heifer replacements.

Keeps good records . . .

Good management and the do-it-yourself ability, above all else, has kept this dairy in the black. Growing his own silage, mixing his own feed, and his ability that enabled him to construct his own all-metal stanchions, are just a few of the practices that have kept his head above water.

"When 65 to 70 per cent of the milk check goes for feed, 15 to 18 per cent to other costs, that leaves me only 15 to 17 per cent of that same check for my time, my management, and my interest on investment. Boy, if you don't think that this breakdown needs watching, you got another thought coming!"

His barn is a modern pipeline and bulk milk tank unit. He milks four cows at one time in his 7-stall milking parlor. He is on every-other-day pickup with about 3,800 pounds of milk.

He has an overhead feed mixer which he uses to mix his own 16 per cent dairy ration.

The present Wilhoit family of three boys and two girls assures manpower replacement for this farmer; and as active church members, it looks like the community can look forward to good citizenship replacements, too.

Lowell has put away the blue and gold of his Future Farmer chapter and is assuming his responsibilities in the local Farm Bureau and other organizations in his community.

THE END

The author is a vocational agriculture instructor in Portales, N. M.

SWINE

by Fred J. Giesler

Feed for more profit

Here is a list of the most common hog feeds and feeding value of each. Know what you are feeding so you can balance the ration.

FEED makes up about 85 per cent of the total cost of raising market hogs and about 70 per cent of the total cost of brood sows and litters. Whether or not you make a profit from your hogs will depend largely on how you feed. Unbalanced rations not only waste feed but may cause unthrifty litters and runty pigs.

Forage in the form of pasture or hay is good hog feed, but in most cases must be supplemented.

Corn is the dominant hog feed of the country. However, small grains such as barley, oats, wheat, or rye may be substituted in part or entirely for corn, depending upon the price. Hogs usually do not gain as rapidly on the high fiber small grains which are usually more costly than corn.

The small grains are better for breeding animals than for market hogs. Most small grains are best fed as mixtures of two or more.

Following are approximate values on an equal weight basis of the different farm grains when fed to hogs:

Corn, 100 per cent. This is used as the standard and frequently the only grain in the ration, especially after hogs reach 75 pounds.

Corn and cob meal (ground ear corn) has 85 to 90 per cent of the value of corn.

Wheat, 105 per cent. It should not make up more than one-half of the ration. It is used as a hog feed only when below milling standard for humans or when other grains are not readily available.

Barley, 95 per cent. Like corn, barley may be fed as the only grain, always keeping in mind that supplements must be added to balance the ration.

Oats, 85 per cent. Oats is also an effective hog feed but should, for best results, make up not more than one-third of ration. Hulled oats is an excellent baby pig feed.

Rye, 95 per cent. One of the less palatable grains, rye should also be fed with other grains and should make up no more than about one-third or one-half of the mixture. Beware of ergot, which is more apt to affect rye than other grains. It may sicken hogs and cause abortion.

Bakery waste. Waste from bakeries have a feeding value similar to all grains except wheat. Keep in mind that value must be determined on an equal dry matter basis.

Good proteins necessary . . .

Grains alone are not enough for hogs. Feeds that provide extra protein are needed. They are body-building substances that help produce the tissue, hair, hoofs, and tendons of the hogs' body.

Experiments have shown that weanling pigs need a ration having about 18 per cent total protein, while well-grown brood sows should be fed a 14 per cent ration.

Corn contains only 9 per cent protein and small grain about 12 per cent. Furthermore, these and other seed or cereal proteins are not, as a rule, complete proteins. They lack certain amino acids which pasture and animal by-products supply much more effectively.

Here is a list of widely-used animal protein supplements:

Dairy by-products (on dry basis): Skim milk and buttermilk, 34 per cent protein; whey 12 per cent.

Tankage and meat scraps, 52 to 60 per cent protein. These are by-products of packing plants . . . meat scraps, bones, and fat trimmings that are thoroughly sterilized by cooking.

Source of plant protein . . .

Soybean meal, 45 per cent protein. Of all plant or seed proteins, soybean meal protein ranks nearly at the top and is nearly as efficient as protein from an animal source.

Soybeans themselves which have a high oil content, are not a satisfactory hog feed for the reason that, whether fed cooked or raw, the oil is likely to result in soft pork. Furthermore, raw soybeans, even though ground, are not palatable to hogs.

Linseed meal, 35 per cent protein. This is lower than the soybean meal and its quality is not as high.

There is little justification for using this product except when the price is competitive.

Wheat middlings, 18 per cent protein, and **wheat bran,** 16 per cent protein. These mill feeds have a place in hog feeding, although they are not used as much as they were in former years.

Because some of these supplements contain more protein than others and also contain varying qualities of protein in terms of their amino acid content, it is necessary to feed them in different amounts. A smaller proportion of protein supplement is called for when higher protein small grains replace corn.

Vitamins also needed . . .

Hogs definitely need several of the vitamins. Those most frequently lacking in swine rations are A, D, B_{12}, riboflavin, niacin, and pantothenic acid.

These can be supplied by careful selection of natural feeds or by commercially-prepared products. Frequently, it is more practical to purchase fortified feed or vitamin pre-mix than it is to select natural feeds high in vitamin content.

Feeds that carry relatively generous amounts of one or more of the vitamins are: Animal and fish by-products, distillers and brewers by-products, and legumes.

Hogs having a critical need for vitamin supplements include:

1. Pigs weaned at an early age (5 weeks or less).
2. All hogs that are under stress (diseased, parasitized, etc.).
3. Pigs suckling their mothers.
4. Young hogs—up to 75 pounds.
5. Lactating sows.
6. Pregnant sows.

Natural sources may vary considerably in their vitamin activity. For example, new corn and fresh, properly-cured legumes are fair to good sources of vitamin A. Likewise, summer sunshine is an excellent source of vitamin D, but during the short, cloudy winter days, a supplement should be used.

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*Report from the Agricultural Experiment Station, Utah State University.

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Dr. Naylor's **BLU-KOTE**

Want to feed top quality, palatable silage to all your cows every day?

Fill with Even-Flo. My silage is well mixed BEFORE fermentation, no separation of cobs, corn and leaves before fermentation. This is your KEY to TOP QUALITY SILAGE.

Even if you mix during feeding--after fermentation--you only hide the bad silage in the good and lower the total quality of the feed in the feed bunk.

Even-Flo fills corn, grass, shelled and crushed corn. Installs easily under all unloaders. No motor needed.

Even-Flo's rotary filling action places the particles in the silo in their proper relationship with no separation. You get even fermentation, top quality, palatable silage from wall to wall.

With Even-Flo you get up to 20% more silage in the same size silo.

See your Silo Company, Dealer, or write

EVEN-FLO SILAGE DISTRIBUTOR INC.
321 S. THIRD STREET — LAFAYETTE, INDIANA

Buy From Our Advertisers — They Are Reliable

Dairy Profits DRY UP without water...

protect yourself with a dependable

RED JACKET "Submerga" PUMP

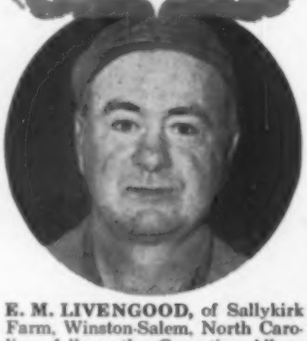
When a dairy is without water, it is virtually out of business. Not only do milk cows need it, but it is also vital for sanitation and domestic use. With a Red Jacket "Submerga" Pump, you can forget water supply problems. It never calls attention to itself with annoying service calls and service bills. Ask your Red Jacket dealer for details.

RED JACKET

CS-101

RED JACKET MANUFACTURING CO.
DAVENPORT, IOWA

My dairy calves gain 2 lbs. a day -breed earlier!



E. M. LIVENGOOD, of Sallykirk Farm, Winston-Salem, North Carolina, follows the Carnation-Albers Herd Replacement Program. "I breed my heifers much earlier and still get the size I want. Calf Manna and Suckle build gains of 2 pounds a day – and at a feed cost savings. Thanks for your know-how!"

Dept. H-41
Albers Milling Company
1016 Central Street
Kansas City 5, Mo.

Calf Manna

FREE DAIRY WEIGHT MEASURING TAPE! Check rapid growth results of Calf Manna and Suckle. Enclose Albers Quality Control Circle.

Name_____

Address_____

HANDY HINTS

GRAIN DRILL TIRE

To help cushion the shock when traveling over rough ground and also make it possible to tow our grain drill over blacktopped highways without cutting up the surface, Harold Draeger, Wisconsin, took old car tires and put them on his grain drill wheels. This 4.50 x 20 tire was slit to make it fit over the wheel and wired into place.

DRINKING CUP IN YARD

Ernie Kueffner, Wisconsin, has been drylot feeding for several years, and for watering his cows, he installed drinking cups outside the barn.

TIMESAVER — BARNYARD CATTLE GUARD

Constructed at the entrance to the barnyard, this cattle guard has proved a great timesaver — no gates to open and shut.

It was built from 14-foot used steel boiler flues obtained at a junkyard and placed over an 18-inch-deep pit framed with used "I" beams. To reinforce the steel pipes, four "I" beams were placed crosswise under the pipes, one at each end and two in the center. Approaches were concreted up to the "I" beams for a permanent surface.

PROTECT HAY ROPE

Occasional treatment of ropes with linseed oil will lengthen their life. Apply by drawing rope through oil-soaked rag. Remember to dispose of rag, since linseed oil is a cause of spontaneous combustion.

Iowa — HAROLD NEWBERG

FORAGE WAGON FROM STOCK TRAILER

To make a forage wagon from his stock trailer, John Moser, Kentucky, lined the trailer with pressed board and placed a canvas apron on the floor. Canvas is rolled up on used boiler pipe on end of trailer to unload forage.

PORTABLE HAY FEEDER

This V-type hay feeder was built of rough lumber from our farm woodlot. It measures 6 feet in width, 16 feet in length, and it is 5 feet, 6 inches high. The V's are 2 feet wide at the top.

The framework is made of 2 x 4's laid on their sides; the skids and 4 x 6's.

All the V stanchions are 2 x 4's and are bolted to the framework. The feeder floor is made of 1-inch boards and nailed to framework.

Feeder can be used in the barnyard or on pasture for young stock and dry cows, as well as for the milking herd.

MAP OF FARM

Draw a map of your farm on a roller-type window shade. Record the crop in each field, fertilizer used, and so forth. Hang the map on a wall in the barn. This makes a handy crop reference.

Minnesota — MRS. LOUIS GABLER

KEEPS OUT DIRT

To keep out dirt when taking hydraulic hoses off the tractor, I wrap aluminum foil over the open connectors.

Minnesota — LEO KRITZECK

SPECIAL OPPORTUNITIES

— Where Buyer and Seller Meet —

The rate for advertising in this department is 35 cents per word per insertion, except for "help wanted" and "position wanted" advertising which is only 20 cents per word per insertion. Count address. "J. W. Foley, Route 13, Green Bay, Minnesota," is considered as eight words. Blind advertisements must be signed: "BOX #, care Hoard's Dairyman, Fort Atkinson, Wisconsin" and count as 8 additional words. Count each initial or group of figures as a word. SEND CASH OR CHECK WITH ORDER. Copy must reach us one month ahead of date of issue. NEW ADVERTISER MUST FURNISH REFERENCES. Send order to HOARD'S DAIRYMAN, Fort Atkinson, Wisconsin. Different rate for Livestock Display advertising.

STOCKMEN'S SUPPLIES

HORN WEIGHTS. Made in 4 sizes ½ lb., 1 lb., 1½ lb., and 2 lbs. Tattoo markers $5.75 postpaid. Includes set of numbers, bottle of ink, and full directions. We also carry complete line of ear tags, neck chains, veterinary instruments, supplies, serums, remedies; in fact, everything for the stockman. Write for free catalog. BREEDERS SUPPLY CO., Council Bluffs, Iowa. 4-*

ARTIFICIAL breeding equipment. Largest, most complete line. Write for free catalog. NASCO, Fort Atkinson, Wisconsin. 1-*

ARTIFICIAL INSEMINATION equipment. World's leading supplier. Write for free catalog. INSEMIKIT COMPANY, INC., Baraboo, Wisconsin. 3-*

MASTITIS TESTERS. Send for free sample and literature. LARAY, INC., Pataskala, Ohio, 11-*

BIG SAVINGS on drugs, vaccines and supplies for all livestock. Free catalog. VETSCO, Box 6305, Minneapolis, Minnesota. 23-*

KILL BITTERWEEDS, wild onions and dog fennel with R-H Weed Rhap. Low cost. Will not injure grass, grains; not poisonous. For free information write REASOR-HILL CORPORATION, Box 36HD, Jacksonville, Arkansas. 1-12

SEND CARD for free wholesale catalogue of veterinary supplies and equipment. EASTERN STATES SERUM COMPANY, 1727 Harden Street, Columbia, S. C. 2-23

VETERINARY SUPPLIES (wholesale) free catalog. WESTERN LIVESTOCK SUPPLY, Box 84, Delta, Colorado. 3-*

SPECIAL MASTITIS OINTMENT. (Procaine Pencillin 100,000 units. Dihydrostreptomycin 100 mg., 10% Sulfamerazine, Sulfathiazole Cobalt 5MG. in sesame oil base disposable syringe). Dozen $4.50 prepaid. (Pen-Fz $9.00 dozen syringes). Withhold milk from treated quarter for 72 hours. Quantity savings. KENSINGTON VETERINARY AND POULTRY SUPPLY, Kensington, Connecticut. 6-*

FREE 92-page handbook-catalog, livestock diseases. Save money. Complete list vaccines, drugs, instruments. KANSAS CITY VACCINE COMPANY, Dept. 30, Kansas City, Missouri. 30 - spl.

CATTLE MARKERS

ALL-NYLON — NO PAINT to chip out. Many colors. Free catalog. CREUTZBURG & SON, Malvern, Pennsylvania. 10-*

LARGEST, most complete line of cattle markers and livestock supplies. Free catalog. NASCO, Fort Atkinson, Wisconsin. 14-*

DAISY CATTLE MARKERS, solid brass tag and brass-plated chain for horns or neck. Write for free catalog. GOLDEN ARROW FARMS, Dept. C, Huntington, Indiana. 10-*

E-Z REDD TAGS make identity fast and accurate. Colorful contrasting numbers, wear resistant plastic. Available with neck chain and fasteners. Write for free agricultural supply catalog from the world's leading source of artificial breeding equipment, breeding and show ring equipment, plus hundreds of other farm items. INSEMIKIT COMPANY, INC., Baraboo, Wis. 3-*

FARM EQUIPMENT

SAVE 40%. Hydraulic manure loaders. VAUGHN MANUFACTURING, Waseca, Minnesota. 4-*

10-TON TRUCK HOIST $199.99 — $50 down, $50 monthly. Can use agents. DUNBAR, Minneapolis 8, Minnesota. 6-4

FREE CATALOG, welders, kits. Build 350-ampere welder using aircraft generator, plans 25c. DUNBAR, Minneapolis 8, Minnesota. 6-4

NEW EXPANDABLE farrowing crate. Steel $26.50. Introduction offer. THE EVR-KLEEN COMPANY, INC., St. Charles, Minn. 6-4

DEPRESSION PRICES, WE SELL CHEAP, save 75% off new and used tractor parts, crawlers, wheel tractors. 190 makes, models. Catalog ready. Send 25c SURPLUS TRACTOR PARTS CORP., Fargo, N. D. 8-6

BRISTOL KOW MATS, guaranteed for 10 years. Used under thousands of cows throughout America. ¾th inch thick, all rubber. Sizes to fit all stalls. Save bedding, save cows, save money. Write BRISTOL KOW MATS, INC., Shelton, Connecticut. 8-2

DAIRY EQUIPMENT

USED BULK MILK TANKS. 200-250-300-400-gallon sizes. Write: P. O. BOX 246, Cedarburg, Wisconsin. 6-*

WANTED: Used bulk milk coolers. BULK MILK SERVICE, Box 246, Omro, Wisconsin. MU 5-5588. 6-3

SURGE 4-UNIT PIPELINE, releaser, washer, complete Cherry-Burrell 300-gallon bulk tank. Both stainless steel, excellent condition. HAROLD MAYNES, Lenox, Iowa. Phone: Prescott 335-2282.

FOUR NEW UNCRATED Clay side-opening milking parlor stalls. One-third off new price. DAVID SCHWITTERS, Winnebago, Illinois.

SILOS

TRIED, PROVEN! Forage saver glass-lined silo, forage saver automatic bunk feeder, Sila-Save ensilage preservative, Even-Flo silage distributors. Farmers, dealers write: SHERROD SILO SALES, Strawberry Plains, Tenn. 7-*

SILO WALLS CRUMBLY? Spoilage around walls? Use DeMuth Penetrating Silo Glaze. Also plastic silage covers. FROBERG DISTRIBUTING COMPANY, Valparaiso, Ind. 8-9

AUCTIONEER SCHOOLS

LEARN AUCTIONEERING, terms, soon. Free catalog. REISCH AUCTION SCHOOL, Mason City, Iowa. 23-*

AUCTIONEER SCHOOLS

LEARN AUCTIONEERING. Free catalog! MISSOURI AUCTION SCHOOL, Box 8466-D4, Kansas City 14, Missouri. 19-*

BUSINESS OPPORTUNITIES

FREE PICTURE FOLDER, "How to make $3,000 yearly, sparetime, raising earthworms!" OAKHAVEN-24, Cedar Hill, Texas. 21-*

FARMS WANTED

MORE DAIRY FARMS needed to sell. Extreme Northern Illinois, Southern Wisconsin. H. E. GILBERT, Realtor & Associates, Elkhorn, Wisconsin. (Over 20 years successful experience at your service.) 6-*

DAIRY FARM on long term milk check basis. Small down payment. Would consider renting. Best references. BOX 635, care Hoard's Dairyman, Fort Atkinson, Wisconsin.

FARMS FOR SALE

GOOD SOUND WISCONSIN farms. Pfister Farm Agency, BERT PFISTER, Mt. Horeb, Wisconsin. 15-*

VIRGINIA livestock, dairy farms and country estates. P. M. BROWNING, Realtor, John H. Hitt, Associate, Culpeper, Virginia. 12-*

FREE CATALOG describes Wisconsin farms for sale. Your copy is ready now. Write LOGANWAY, INC., Fort Atkinson, Wisconsin. 1-*

200-ACRE DAIRY FARM, 50 head of cattle, all necessary machinery, all feed, good buildings with beautiful 2-apartment home, regular show place. About $15,000 down payment on all, total price on everything $40,000. Immediate possession. FLOYD JOHNSON, Marshfield, Wisconsin. Telephone Lindsey 1304. 7-4

WISCONSIN FARMS: 190-acre dairy farm with 170 acres level cropland, 34-stall barn, 500-gallon bulk cooler, modern home, available on contract. Priced at $52,000. 119-acre river front dairy farm has 100-foot barn equipped with 38 stalls. Modern 4-bedroom home. About 80 acres tiled level black workland. Takes only $6,000 down. Full price $30,000. 118-acre dairy farm with 90 acres cropland. Barn 30x70 has 24 steel stalls, extra heifer barn. 4-bedroom home with bath and furnace. Land contract, terms. $30,000. Many other farms listed. Write for free catalog. Photos and facts mailed free on all listings. Write LOGANWAY, Inc., Realtors, Fort Atkinson, Wisconsin. 7-2

147-ACRE Beef and hog farm, good buildings, running water, 2 miles town, quick sale, $14,800. WM. McSHERRY, Salesman, Mt. Horeb, Wisconsin. Smith Johanning, Inc., Dodgeville. 7-2

315-ACRE creek bottom farm. 3-stall Surge elevated barn, bathroom, pipeline, tank. Automatic washers. 40 Holsteins, high producers. 8-room colonial modern. 2 International tractors and lots of equipment. $20,000 cash, will finance $25,000 balance to dairyman. Retiring. GEORGE NEWCOMB, West Plains, Missouri.

INFORMATION, selecting farms on productive bases. Easy terms. FOWELL'S REALTY, Viroqua, Wisconsin. 8-2

INTERESTING BARGAIN: Beautiful 370-acre Wisconsin farm estate bordering Jump River. Scenic, secluded location in productive, rolling section of Price County. Adaptable to beef raising or dairying. Unusual 14-room 5-bedroom residence of multi-colored fieldstone construction, 2 baths, furnace, 45-stanchion barn with Jamesway cleaner, milk house with cooler, 3 silos, other buildings. 135 acres cropland, lush pasture for 60 head, 21 alfalfa, 2 ponds. Bargain priced for profit and pleasure at $18,000, only $5,000 down. Free spring catalog, the nation's biggest, 176 pages, over 1,250 photos, bargains coast to coast! UNITED FARM AGENCY, 1304-HD Consumers Building, 220 South State Street, Chicago 4, Illinois.

STROUT'S FREE CATALOG! Big bargain book of farms, homes, businesses. Spring-summer issue, nearly 3 times as many property descriptions as any other real estate catalog, twice as many states! 60 years service! STROUT REALTY, 7-AU South Dearborn, Chicago 3, Illinois. 8-4

300-ACRE Florida dairy farm on west coast. Excellent milk bases, $7.10 per cwt. Latest modern equipment. Now milking 250 head. Gross income $110,000. Will sell for $275,000. Small down payment, best of terms. RIVERLAND FARMS, INC., Route 2, Box 275, Bradenton, Florida. 8-2

150 ACRES, Central Wisconsin, 3-bedroom, modern house, milking parlor, glass line milker, Grade A milk market, large loafing area, 2 silos, corn crib, garage, machine shed, 63 head cattle, full line modern machinery, gently rolling, well drained land. $50,000. Send for our free catalog. STEVENS AGENCY, Spencer, Wisconsin. Phone OLiver 9-2291.

760-ACRE DAIRY FARM, Central Wisconsin. 100-head cattle. 2 tractors, caterpillar tractor, combine, baler, chopper, other large machinery. Barn: 36x190, new, 76 steel stanchions, cleaner. Barn: 36x65, open gen. 3 silos. Bulk milk tank. House: 8 rooms, modern. Second set buildings: House, machine shed, garage. $105,000 with $30,000 down. Request pictures, full description. DAIRYLAND REALTY, Abbotsford, Wisconsin.

SOUTH CAROLINA dairy farm now in operation. Detailed information upon request. T. L. HICKS, Newberry, South Carolina. 8-2

MICHIGAN DAIRY, beef cattle farms, to 3,500 acres. Folders free. LYLE MASON REALTY, Gobles, Michigan. 8-*

FARMS FOR SALE

128-ACRE DAIRY FARM, (extra 40 acres optional). Good land, good 3-bedroom modern home, oil heat, 10-yr-old dairy barn, 36 stanchions with water. Barn cleaner, tramp shed, large hay barn, with bunks. Cemented barn lot, 3 silos, electrically heated waterers, 3,000-lb. bulk tank, pipeline milker. 5 miles south of South Bend, Indiana. 20% down. Owner retiring. KEYSER AGENCY, Plymouth, Indiana. 7-2

POSITIONS WANTED

WOULD LIKE TO buy or spot dairy cattle—by a reliable, experienced middle-aged man living in Madison, Wisconsin. BOX 626, care Hoard's Dairyman, Fort Atkinson, Wisconsin. 7-2

FAMILY MAN desires general farming or dairying. Have experience and excellent references. Prefer Pennsylvania or Ohio. Write EARL M. KRONE, Route 3, Mechanicsburg, Pa.

SALES POSITION desired by young aggressive man, with proven sales experience. Prefer to work on commission. Have good education. BOX 634, care Hoard's Dairyman, Fort Atkinson, Wisconsin.

HELP WANTED

WANTED: Experienced artificial breeding technicians. Through our frozen semen program and freezers, areas may be developed in any state. References required. Write PIPER BROTHERS FARMS, Watertown, Wisconsin for details. 8-*

DAIRY FARMER WANTED. We have a registered Holstein dairy farm near Flemington, New Jersey on which we need a good all-around dairy farm worker. Experience with milker and farm machinery necessary. 3-room apartment available with privileges and good wages. Job available May 1. Write listing references and phone. DOANE AGRICULTURAL SERVICE, INC., Box 348, 63 W. State Street, Doylestown, Pennsylvania, phone Fillmore 8-5270.

WANTED: Man in sixties to help on modern dairy farm in exchange for a good home plus wages. Must be non-drinker. BOX 633, care Hoard's Dairyman, Fort Atkinson, Wisconsin.

SALESMAN WANTED

SERVICE YOUR AREA—agents, dealers, farmers make $125 up weekly distributing nationally advertised Campbell's Gro-Green liquid and 100% soluble crystal fertilizer concentrates. No investment. Samples free. Ideal proposition for corn and feed men. CAMPBELL COMPANY, (Est. 1923), Rochelle 30, Illinois. 4-5

SENSATIONAL new longer-burning light bulb. Amazing free replacement guarantee — never again buy light bulbs. No competition. Multi-million dollar market yours alone. Make small fortune even spare time. Incredibly quick sales. Free sales kit. MERLITE (Bulb Division), 114 East 32nd, Dept. C-74D, New York 16. 7-2

AGENTS WANTED

EXCLUSIVE DISTRIBUTORSHIPS available for many excellent territories. Our new and outstanding line of milking machine rubber for all makes of milkers is sold with an unqualified guarantee of customer satisfaction or money back. Write NORTH AMERICAN RUBBER COMPANY, Bellevue, Ohio. 7-2

HAY AND BEDDING

GRADED DAIRY ALFALFA and other grades hay. ART CALLARI HAY COMPANY, Upper Sandusky, Ohio. 20-*

DAIRY CUT — Bright green Colorado coarse chopped steamed alfalfa under patented process — practically no dust — alfalfa leaf intact. 30-ton cars 100's — great milk producer. Samples and prices: NEUMOND, INC., 8100 Oakland, St. Louis, Missouri. 5-4

SEEDS AND PLANTS

CERTIFIED PLANTS. Pay on arrival. Frostproof cabbage, onions, tomatoes, pepper, broccoli, Brussels sprouts, collards, cauliflower, 200, $1.50; 500, $2.50; 700, $3.00; 1,000, $3.50; 5,000, $16.25. Leading varieties, mixed as wanted, moss-packed. TEXAS PLANT FARMS, Jacksonville, Texas. 7-2

SWEET POTATO PLANTS. Guaranteed. Improved Porto-ricos, Nancy Halls, All Golds, Vineless Porto-ricos, Copperskin Goldrush, Georgia Reds, 200-$1.50; 500-$2.50; 1,000-$4.00; 10,000-$35.00. Free growers guide "Growing Potatoes Everywhere." STEELE PLANT COMPANY, Gleason, Tennessee.

STRAWBERRY PLANTS — certified northern grown Dunlap, Blakemore, Giant Robinson, Premier, Armore 200-$2.50; 500-$6.00; 1,000-$10.00 postpaid. 5,000-$35.00 express collect. Giant Gem, Streamliner, Superfection everbearing 100-$2.50; 300-$6.00; 1,000-$15.00. 20 Mammoth rhubarb or 40 asparagus $1.00. Gladiolus-large flowering, rainbow mixture 50-$1.00. Everything postpaid. Fresh plants, prompt shipment. IOWA NURSERY, Farmington, Iowa. 8-2

POULTRY—BABY CHICKS—DUCKS

KEYSTONE world's first sex-linked white Leghorns, not squeessed to separate sexes. They inherit visible traits, shows sexes, big white eggs, outranked nationally known strains in random laying contests. Statistics free. KEYSTONE FARMS, Richfield 10, Pennsylvania.

DOGS

GENUINE English Shepherd and Collie Pups. Healthy and strong. Guaranteed heelers. Year's trial. Choice of sex. Spayed females a specialty. Priced right. CLOVERDALE KENNEL FARM, Ackley, Iowa. 18-*

WORKING BORDER COLLIES, puppies from imported parents. HOWARD McCLAIN, 2620 McClain Road, Lima, Ohio. 23-*

SHEPHERDS, COLLIES. Outstanding Heelers. Watch Dogs. ZIMMERMAN FARMS, Flanagan, Illinois. 2-*

SWINE

WISCONSIN FEEDER PIGS for sale. 40 to 60 lbs. Sold direct on weight basis. Also heavier pigs. 48 hour liability. C. ACKER, Middleton, Wisconsin. Phone TE 6-3451. 6-*

MISCELLANEOUS

WANTED: Old fashioned sausage making equipment, chiefly sausage mixers. BOX 619, care Hoard's Dairyman, Fort Atkinson, Wis. 6-3

OF INTEREST TO WOMEN

$2.00 HOURLY possible sewing our ready cut aprons at home. Spare or full time. Experience unnecessary. Write HANKY APRON COMPANY, Caldwell 17, Arkansas. 19-*

AVERAGE $2.00 HOUR sparetime, assembling our lamps. Simple. Easy. No canvassing. Write: OUGOR, Caldwell 24, Arkansas. 4-*

STOP throwing away those boxtops! They're worth money! Some 25c each! Inquire: BOX-TOPS-DD, Cedar Hill, Texas. 6-*

PLASTIC FREEZER CONTAINERS. Square pints, $2.95; quarts, $15 per hundred postpaid. Sample pint, 25c. OXBORO, Box 7031QQ, Minneapolis 11, Minnesota. 8-10

DAIRY CATTLE

NOTICE TO BUYERS — WHEN BUYING DAIRY CALVES OR DAIRY CATTLE, inspect and select cattle personally. If impossible, have them checked by someone in whom you have confidence. Complete understanding in writing between buyer and seller is very important. Should you buy on approval, it is advisable to have animals inspected by veterinarian on arrival before acceptance. Report serious health problems to your state veterinarian. — Hoard's Dairyman.

KENYON BROTHERS FARM serving the dairy farmer for forty years. Large selection of choice Holstein cows and first calf heifers, fresh and close springers, service bulls. T.B. and Bang's tested. In carload or truckload lots. KENYON BROTHERS CO., Elgin, Illinois. Phone SHerwood 1-1818. 19-*

CANADIAN HOLSTEINS direct from the farms. Registered, T.B. and Bang's certified. MIDDLESEX HOLSTEIN BREEDERS ASSOCIATION. Phone Lambeth OL 2-2616. Hardy Shore, Glanworth, Ontario. 15-*

HIGH QUALITY Holstein and Guernsey springers and heifers all sizes. J. W. & BILL GEURKINK, telephone 322 or 21F31, Baldwin, Wisconsin. 18-*

REGISTERED HOLSTEINS: A few service age bulls, some younger males, foundation females and heifers. Nearly all sired by excellent sires and from classified dams with HIR records. SanMarGale FARMS, Box 265, Lebanon, Ohio. Phone 5-2606. 22-*

WISCONSIN DAIRY CATTLE. Attention: Dairymen and cattle dealers. Top springing cows and heifers. Also open heifers any size. We have drivers available to buy direct from the farmers or will fill orders as directed. CONNERING BROTHERS DAIRY FARM, Route 1, Kaukauna, Wisconsin. Phone — Little Chute, Wisconsin ST 8-3332 or ST 8-2576. 1-12

HOLSTEIN SPRINGER HEIFERS and young springer cows; large selection of open and bred heifers. CHESTER FROBERG, Valparaiso, Indiana. Phone HO-2-1060. 5-4

KEATING BROTHERS FARM offers large selection fresh and springing selected cows and heifers, strictly quality. Buying on order saves time and money. Call or write FORT ATKINSON, WISCONSIN. Telephone JOrdan 5-5905. 5-*

ATTENTION DAIRYMEN and Cattle Dealers: Indiana's largest selection of grade and purebred Holstein cattle, bred for production and show type, will sell one or 500. We will ship subject to approval. Cattle eligible for any state. Vaccinated, T.B. and Bangs accredited. Terms to reliable parties. BOTTEMA FARMS, Rural Route #2, Box 206, Indianapolis, Indiana. Phone TE 9-6575. 19-*

CHOICE HOLSTEIN cows and heifers, all ages. Vaccinated. T.B. free. Fieldman available, or will fill orders as directed. Whitewater Dairy Association, DEAN HARNDEN, Whitewater, Wisconsin. Phone Palmyra 358. 1-*

WE ARE NOW READY to fill your orders for Holstein and Guernsey cows and heifers. Shipped direct from farmer to you on commission basis. CHET BURNSTAD & SON, Tomah, Wisconsin. Phone Tomah 406-M or 752-R-13. 16-*

DAIRY CATTLE SALES, every Thursday, April through October. Top springer cows and heifers. 400 to 600 head every sale. MATTES LIVESTOCK MARKET, Thorp, Wis. 10-*

WISCONSIN HOLSTEINS for the Southern states. Financing available. Heifers and cows on hand at all times, originating from the best producing herds in Southern Wisconsin. Artificial breeding. Bang's and T.B. tested for any state. Call P. R. ELAM, Marshall, North Carolina, phone 3451, or Mars Hill, North Carolina, 2381 nights. 6-*

CANADIAN Registered Holsteins. Young vaccinated cows and heifers. Buy direct from the farms. Elgin County Holstein Breeders Club. Telephone Talbotville, Ontario 6-R-12. DON SHORE, R.R. #6, St. Thomas, Ontario, Canada. 7-*

FOR SALE: Holstein springing heifers and cows. Good selection of open and bred heifers. R. B. BRICHER, St. Charles, Illinois. Phone JU-4-2347 days, JU-4-2895 nights. 7-24

CHOICE HOLSTEINS. 25 calf yearlings, 25 August freshening. 1100 lb. 2-yr-olds. 35 heifers to freshen in April and May. BILL CLOW, Plainfield, Illinois. GE-6-6629. 8-2

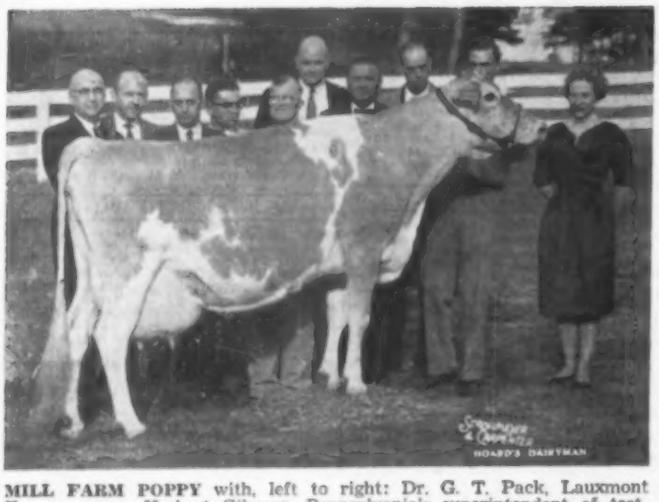
TOP QUALITY HOLSTEIN cows and heifers. Bred or open. Calfhood vaccinated. VERNUS STROMMEN, Blanchardville, Wisconsin. 8-6

WISCONSIN HEIFERS (Dodge County) of all ages of top quality. Approximately 150 to 200 head on hand at all times. HICKEY LIVESTOCK, Juneau, Wisconsin. 8-4

FOR SALE: Buy your vaccinated dairy cows and heifers direct from the farmers where quality prevails. GEORGE E. SWANSON, Rice Lake, Wis. Phone CEdar 4-4717. 6-19

WISCONSIN HOLSTEINS: Top springing cows and heifers, also open heifers all ages. Have drivers available to buy direct from farmers. Let us know your needs. Call or write MIKE J. BRADLEY, Denmark, Wisconsin, phone UNion 3-5806. 5-6

MORE SPECIAL OPPORTUNITIES ON NEXT PAGE



MILL FARM POPPY with, left to right: Dr. G. T. Pack, Lauxmont Farms owner; Herbert Gilmore, Pennsylvania's superintendent of testing; Socrates Kereazis, superintendent of testing, A.G.C.C.; Leon Clark, breeder; Bill Lewis, milker; Joe Taylor, extension dairyman; R. D. Stewart, secretary of American Guernsey Cattle Club; Elmer Salisbury, Lauxmont manager; Roger Strack, herdsman; Mrs. George Pack.

New Guernsey milk champion

Mill Farm Poppy, a registered Guernsey cow, owned by George T. Pack, Lauxmont Farms, Wrightsville, Pa., has broken all milk production records for the breed.

Her record of 29,665 pounds milk, 1,190 pounds fat, was completed in a 365-day lactation on 3x in A.R. Classified Excellent three times.

"Poppy" carried a calf during the last five months of her record. She consumed an average of 30 to 35 pounds of commercial dairy feed, 6 pounds of beet pulp, and all the alfalfa mixed hay she would eat daily.

Bred by Mr. Leon Clark, Centerville, Md., Mr. Pack purchased her in January 1957.

Keener new dean

Dr. Harry A. Keener, professor of dairy science and director of the agricultural experiment station, has been appointed dean of the University of New Hampshire's College of Agriculture. He will succeed Dean Harold Grinnell on July 1. Grinnell is retiring on reaching the mandatory age.

Dr. Keener, a member of the New Hampshire University faculty for 20 years, will continue temporarily as director of the agricultural experiment station. A native of Pennsylvania, he holds B.S. and Ph.D. degrees from Pennsylvania State University and a M.S. degree from West Virginia.

Hitz A.D.A. president

William J. Hitz, 40-year-old registered Guernsey breeder from Polk City, Iowa, was elected president of the American Dairy Association at the organization's twenty-first annual meeting held in Chicago last month. He succeeds Lyman D. McKee, Madison, Wis., who had served two terms and was not eligible for re-election.

Troy Kern, Cooper, Tex., was elected to a two-year term as vice-president to succeed Hitz who had served in this post the past four years. Armin Truttman, Olema, Calif., was re-elected to a two-year term as a member-at-large on the executive committee.

Other officers, whose offices did not expire this year are: Carey A. Houlette, Columbiana, Ohio, secretary; John A. Moser, Louisville, Ky., treasurer; Franklin Teague, Elon College, N. C., assistant secretary-treasurer; and Milton Southwell, Athens, Ga., a member-at-large of the executive committee.

Swiss exports high

Exports of Swiss cattle [from Switzerland] for breeding purposes reached a total of 13,366 head in 1960, highest since 1910 when 18,722 animals were exported.

In the above total, the Brown Swiss breed accounted for 11,320 head, the Simmenthal breed for 2,030. Two-thirds of the exports went to Italy, another 30 per cent to West Germany. France took a smaller number.

Swiss cattle exporters are benefiting by a government export subsidy of S.frs. 750 (about $180) per cow or heifer. There is no doubt that this subsidy had something to do with the record high of 1960 exports. —AGRA-EUROPE, BONN

Holsteins average $375

At the Iowa Holstein Spring Sale, held at Waterloo, Iowa, March 18, 68 head sold for an average of $375.

Ronald Chapman, Ruthven, Iowa, consigned both the high-selling female and bull. His bred heifer, Hawkeye Raven Ruth, was purchased by T. T. Kies, Story City, for $900, while his bull, Hawkeye Wis Captain Pilot, was purchased for $650 by Wilfred Thome, Stacyville.

A breakdown of the sale showed:

23 4-H heifers averaged $268
18 bred heifers averaged $445
19 cows averaged $416
8 bulls averaged $432

DAIRY CATTLE

CHOICE SELECTION of Holstein dairy cows and heifers, fresh and close springers. T.B. and Bang's tested. Calfhood vaccinated. Registered bulls service age. HARTMAN & SON, Hampshire, Illinois. Phone 3621. 2-

WISCONSIN DAIRY COWS — I am handling good-producing dairy cows for improvement to your dairy herd. If you are interested in a higher milk producing herd, I can supply you with all the good dairy cows you need. Arrangements can be made to make delivery of these cows anywhere in the United States or abroad. Office headquarters are at Columbus, New Jersey. Always a large selection on hand. Write or call REUBEN GREENBERG, Columbus, New Jersey. "A good deal for every dairyman." Mailing address Reuben Greenberg, Columbus, New Jersey—phone Bordentown, N. J., AXminster 8-1021. 20 - apl.

DAIRY CATTLE WANTED

WANTED: 100 Holstein heifers, about 300 lbs. Delivered $60 each. SOLOMAN GEORGE, Valdosta, Georgia.

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For advertising of livestock only: Including consignment, dispersal or reduction sales, breeders herds and individual animals. Also dealers, county, state and national breed associations, artificial breeding associations, semen sale ads, fairs, expositions etc.

WRITE FOR RATES

Special rates for continuous and large space advertisers.

NOTICE TO BUYERS

WHEN BUYING DAIRY CALVES OR DAIRY CATTLE, inspect and select cattle personally. If impossible, have them checked by someone in whom you have confidence. Complete understanding in willing between buyer and seller is very important. Should you buy on approval, it is advisable to have animals inspected by a veterinarian on arrival before acceptance. Report serious health problems to your state veterinarian.

— Hoard's Dairyman.

Weekly Dairy Cattle Sale

First sale for the season will be

FRIDAY, APRIL 28 at 1:00 p. m.

and every Friday until November. 500 head of dairy cattle, any type you want will be available. Also we make deliveries of livestock anywhere on your approval.

NOLAN BROTHERS
MARION, WIS.

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Midwestern Dairymen ! ! !

Fine foundation **SPRINGING** heifers, yearlings, cattle of all ages. These are sold on commission basis to you. We have buyers throughout the northern dairy states and can supply the finest for the best possible price. One of the midwest's largest dealers serving dairymen for the past 8 years. We will deliver C.O.D. to your farm by our experienced drivers. We are moving 300-500 head per week.

WE FINANCE - UP TO 24 MONTHS TO PAY

DENNIS R. GROSSE
PHONE 1419 YORK, NEBRASKA BOX 48

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IMPROVE YOUR DAIRY HERD

Three of our registered Ayrshires are calving soon. Take a bull calf, use him until 3 years old FREE. Write: CORKWELL and WEIMER, Mt. Sterling, Ohio.

NOW YOU CAN BUY

POLLED AYRSHIRE BULL CALVES

That are from high producing families
That are of Carefree Farms & Penshurst Breeding
That give you excellent type calves
That are priced at prices sure to please

WRITE FOR PEDIGREES AND PRICES
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BULL CALVES of all ages from high-producing cows. Write for prices and pedigrees. **Mar-Ral Farm, Route 1, Algonquin, Ill.**

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GREATER PRODUCTION PROOF

ACTUAL 2X 305 DAYS

Shagbark Rhoda — 20,605 M.
5.0% 1024F. 8 Yrs. Pictured here

Green Valley Raff Incense
21,255 M. 4.3% 916 F. 7 Yrs.

Valhalla Hannah 2nd
20,616 M. 4.4% 916 F. 4 Yrs. 4 mos.

Greater Profits — Economical converters of feed to quality milk — Regularity of calving — Additional income from registered calves — Lower Veterinary costs — Udders strongly attached — Lower replacement costs.

Greater Opportunities — For Net Profits — For a Product that suits the Market — For Sales

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FOUNDATION AYRSHIRES SELLING IN THE '61 GRAND NATIONAL SALE

MAY 13th AT 12:30 P.M., E.D.T. FARM SHOW BUILDING **Harrisburg, Pa.**

An impressive Ayrshire offering featuring Top Production in combination with outstanding type. One of your best Ayrshire Investment Opportunities.

A son and granddaughter of Shagbark Rhoda EX with 1024 F actual 2x 305-days selling. The 1959 Ohio State Fair Grand Champion and Futurity winner sells.

22 bred heifers—12 cows and first calf heifers—open heifers and bulls. Your choice of the breed's finest.

Catalog published in April issue of The Ayrshire Digest. Copy FREE upon request.

AYRSHIRE BREEDERS' ASS'N. Box 10, BRANDON, VERMONT

1725 Guernseys at Auction

SUNNYCREST FARM DISPERSAL

MONDAY, APRIL 24 Pennsylvania Sales Pavilion, 1:00 P.M. — LANCASTER, PENNA.

HERBERT H. STERNER, JR., LITTLESTOWN, PA.—Owner

66 HEAD 6 BULLS • 30 COWS • 12 BRED HEIFERS (Due Aug. and Sept.) • 18 OPEN HEIFERS . . . This is an outstanding, small herd including the Grand Champion and Reserve Champion Cows at the Pennsylvania Farm Show, both EX. The sale will include many cows and daughters of such top sires as Nyala Ermine's Bonanza, Wyno Beau's Saint, Yellow Creek Jewel Supreme, Fairlawn H. Eastern King, etc.

LIEBLUND FARM DISPERSAL

SATURDAY, MAY 6 - 10:00 A. M. - STILLWATER, PA.

Farm located 10 miles West of Shickshinny and 5 miles East of Benton, Pa., just off Route 239.

MR. AND MRS. GEORGE C. LIEB, Owners

72 HEAD 3 BULLS • 41 COWS • 12 BRED HEIFERS • 16 OPEN HEIFERS. The Lieblund Herd is headed by two outstanding sires, **Hominy Hill Count** and **McDonald Farms Jolly Zestful**, both out of EX cows and selling with over 45 daus. between them. The herd is cl. with an 84.8% av. and the HIR records completed in 1960 av. 12228-630 F.

Also Selling At Noon — The Lieblund Farm of 227 Acres, including 3 houses, 2 barns, machinery shed, heifer shed, etc. The main house is Colonial Stone completely modernized with 4 Bedrooms, 2 Living Rooms, Modern Kitchen, etc. There is a new Tenant House with 3 Bedrooms, Living Room, Modern Kitchen, Dining Area, etc. The Barn has 40 comfort stalls (Cherry Wood), 9 Calf Pens, 8 Box Stalls, 3 Silos. The land is highly productive producing over 20,000 bales of high quality hay last year. All fields will be fertilized prior to sale. This is one of the most beautiful, productive and efficient farms we have seen.

COMPLETE LINE OF UP-TO-DATE FARM MACHINERY SELLING AT 10:00 A.M. CATTLE SELL AT 1:00 P.M.

THE 36th GUERNSEY SALE

WEDNESDAY, MAY 24 . . . . . 1:00 P. M.

WOODACRES FARM — PRINCETON, N. J.

40 HEAD 5 BULLS • 24 COWS • 11 BRED HEIFERS. This is always a show window sale of top cattle from leading herds. There will be one of the best groups of bulls we have ever offered—their dams all EX and from top producing and reproducing lines in the breed.

The THIRTEENTH McDONALD FARMS SALE

FRIDAY, MAY 26 1:00 P.M. **McDonald Farms, Cortland, N. Y.**

40 HEAD 3 BULLS • 25 COWS • 12 BRED HEIFERS. McDonald Farms have bred the sires of over half the All-American Guernseys since the contest was inaugurated. Last year their herd ranked second in the nation for herds of over 100 head on HIR test. There will be 3 of the very best young McDonald sires selling including a son of McDonald Farms Jolly Token, 1st Aged Cow NGS.

GREYSTONE FARM COMPLETE DISPERSAL

SATURDAY, MAY 27 10:00 A.M. **Auburn, N. Y.**

LLOYD S. RIFORD, Owner PAUL FLEMING, Manager

150 HEAD 8 BULLS • 75 COWS • 20 BRED HEIFERS • 47 OPEN HEIFERS. A large number due in late summer and fall. This herd was established 35 years ago and has been on continuous test. They have cl. 6 times and the 60 cows cl. are 3 EX; 35 VG; 18 D and 4 A. The herd has been rigidly culled and is built on cow families that are backed by outstanding lifetime production. There will be 87 daus. of 4 sires including the Gold Star Sire—Fairlawn Actorine's King and the All-American, Caumsett Tore.

MAEGEO FARMS COMPLETE DISPERSAL

Monday and Tuesday, May 29th and 30th

LEXINGTON, N. C. — GEORGE S. COBLE, Owner

1181 HEAD INCLUDING 582 REGISTERED GUERNSEYS • 417 COWS • 105 BRED HEIFERS • 312 OPEN HEIFERS and CALVES • 347 STEERS . . . The Maegeo herd was started 20 years ago with the purchase of females from leading herds. No expense was spared in obtaining the best sires available and for several years held practically all of the State Production Leaders in North Carolina. In recent years the herd has been operated on a commercial basis using a milking parlor and for the past two years, Brown Swiss and Holstein sires have been used. There are many good, young cows in this herd backed by some of the best blood of the Guernsey breed. Due to over 300 head being sold each day we predict there will be many profitable purchases.

Sale Managed With The J. L. DODD AUCTION CO., ROME, GA.

Pre-Eminent Guernsey Farm Dispersal

Monday and Tuesday—June 26 and 27, 1961

GALLATIN, MISSOURI — HAROLD APPLEY, Manager

Sterling Industries, Inc., J. C. Penney, Owner, 330 W. 34th St., New York 1, N.Y.

175 HEAD 7 BULLS • 103 COWS • 30 BRED HEIFERS • 35 OPEN HEIFERS. Mr. J. C. Penney has assembled some of the breed's greatest Guernseys at Pre-Eminent Farms including **Hagan Farms Merry Song**, 3 times National Grand Champion and 7 times EX and **Class Leader** with 6 records over 700 F and **Lash-Acres Hermes Quest**, 4 times EX. Breed's highest cl. now at 95%, 3 times All-American, National Champion and 1104 F. Due to the limited time he can spend in Missouri, Mr. Penney is dispersing this herd which presents one of the great opportunities to purchase proven brood cows and outstanding females.

All of the cattle are from TB and Bang's Accredited Herds and are practically entirely vaccinated.

For Catalogues and Information on these sales or if you care to Buy or Sell Guernseys privately or at Auction contact—

The MERRYMAN COMPANY Sparks, Maryland

Phone — PRescott 1-4321 John B. Merryman, Auctioneer

NOTICE TO BUYERS

WHEN BUYING DAIRY CALVES OR DAIRY CATTLE, inspect and select cattle personally. If impossible, have them checked by someone in whom you have confidence. Complete understanding in writing between buyer and seller is very important. Should you buy on approval, it is advisable to have animals inspected by a veterinarian on arrival before acceptance. Report serious health problems to your state veterinarian.

— Hoard's Dairyman.

REGISTERED AYRSHIRE BULL 15 months old, sired by double approved sire and dam's record 18,880 M, 850 F. We also have one month old bull calves reasonable.

GREENFIELD FARMS

Route 2, Box 63 Mukwonago, Wis.

AYRSHIRE DISPERSAL

For JOHN F. STAMY, JR.

NEWVILLE, PENNSYLVANIA

MON., MAY 15, AT 11:00 A.M. D.S.T.

22 Miles W. of Harrisburg, Pa.

MILKING HERD & HEIFER CALVES

120 Cows and First-Calf Heifers — 50 Heifer Calves — 2 Bull Calves. A top producing, practically handled, well bred herd. 1960 DHIA av. for 110 cows—10105 M 4.1% 414 F (Actual). Herd making over 2 Tons of milk a day. 7 Cows due in Sept., 33 in Oct., 37 in Nov., others later. Many bred artificially to the Breed's leading sires. Cattle are dehorned. The cows are young and they'll make money for dairymen anywhere. An unusual foundation stock buying opportunity.

HEALTH: TB Accred., Bang's Certified, Calfhood Vaccinated, tested within 30 days prior to sale.

For Catalog Write

TOM WHITTAKER, Sale Mgr. BRANDON, VT.

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MAYBE YOU WANT

"LOWER COW TURNOVER"

You don't need to operate your dairy at a loss because of a big **"COW TURNOVER"** in your herd — There is a great difference in the working lifetime of different cows.

Some cows may milk heavy for a short time, but how long do they last — One year, two years, or three years may mean the end of their milking lifetime in your herd.

BROWN SWISS, the "LONG LIFE BREED," hold the longtime production records over all breeds. The high cow, **LADY'S GYPSY GIRL F.**, still milking, and close to 19 years of age, has official production records for a total of 270,598.7 M, 11,569.92 F, September 1, 1958.

— Brown Swiss Live and Work Longer—

For more information about the breed Write

BROWN SWISS ASSOCIATION, Beloit, Wis.

JERSEYS

I have choice high grade bred Jersey and Guernsey heifers, also fresh and springer cows. All T.B. and Bang's tested. Come and make your selection, or will fill your order or help you buy. Phone University 5-4113. CLAUDE THORNTON, Route 2, Box 256, Springfield, Mo.

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We have a long line of bull calf customers who have successfully proved them and resold them at a handsome profit.

IF YOU ARE INTERESTED IN AN INVESTMENT PROMISE, WRITE US ABOUT A BRIGHAM PRODUCTION BULL

New Heifer List Also Available

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EXCELLENT, SILVER & GOLD MEDAL SENIOR SUPERIOR SIRE

39 daus. avg. 10,910 milk, 620 fat

32 class. daus. avg. 88.13%

A few of his select sons are available.

PIXY FARM HUDSON, WIS.

GUERNSEYS

GUERNSEY

SALES SERVICE

Six fieldmen of the largest Guernsey Association in the nation are fully acquainted with cattle for sale in Pa., Del. and Eastern States. We have private listings at all times, also regular monthly sales. If you need one, or a car load, write for prices — get quick service. If you want to sell, contact us — low selling charge — prompt payment.

Often requests for cattle come from all over the United States. It may be from your next door neighbor! Send us your listing so we can tell the prospect nearest you.

Pa. Guernsey Breeders' Ass'n.

P. O. BOX 302 CAMP HILL, PA.

PUREBRED GUERNSEYS:

Young cows with good DHIR records due with 2nd and 3rd calves. Heifers all ages up to freshening. High production inheritance. From proven cow families and by proven sires.

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Are You Caught in the SQUEEZE?

Here are two compelling reasons why Registered Guernseys will help you beat the cost-price squeeze and get a premium for your milk.

1 Guernsey Milk contains more solids-not-fat than the milk of any breed at the same butter fat test.

2 The Guernsey Milk program is the only breed milk program that commands a premium from the consumer and passes it along to you, the producer.

FREE FACTS Write today:

Start Your Registered Guernsey Herd Now!

THE AMERICAN GUERNSEY CATTLE CLUB
100 Main Street, Peterborough, N. H.

☐ "Why be a Golden Guernsey producer?"

☐ Send FREE information on how to start a Guernsey Herd, and a copy of "Profitable Dairying."

NAME _____

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TOWN _____ STATE _____

Government Report Pin-Points Trend

Figures recently released by the U. S. Department of Agriculture show that the average butterfat content of all milk produced on American farms dropped from 3.96% in 1950 to 3.77% in 1959.

The "19-point" decline is the largest for any 10-year period on record. It represents the trend in all regions — as well as in the country as a whole.

In analyzing the information, USDA reports that: "The switch to cows producing greater quantities of milk with a lower average butterfat test appears to be the primary cause of the change.

"Through experience and from results at experiment stations, many farmers apparently have concluded that cost of producing milk declines with increases in milk production per cow.

"At the same time, additional dairymen have come to the conclusion that milkfat can be produced more cheaply with cows giving a lower fat milk.

"In either case, with the more general understanding as to the declining demand for milkfat, additional producers were alerted to the advisability of switching to cows producing a lower fat testing milk.

"**The decline in fat test** of milk has also been a factor in reducing surplus volume. For the year 1959, for example, if the fat test had been equal to that of 1950, production of milkfat would have been greater by about 235 million pounds.

"But the major share of it would have ended up in sales to the government. Purchases of milkfat for price support in 1959 would have been nearly three times the 126 million pounds purchased.

"Milk with a lower fat test generally has a greater proportion of nonfat ingredients. For instance, Holstein milk has a lower fat test than the other popular dairy breeds but for every pound of fat there is about two-and-one-half pounds of nonfat solids."

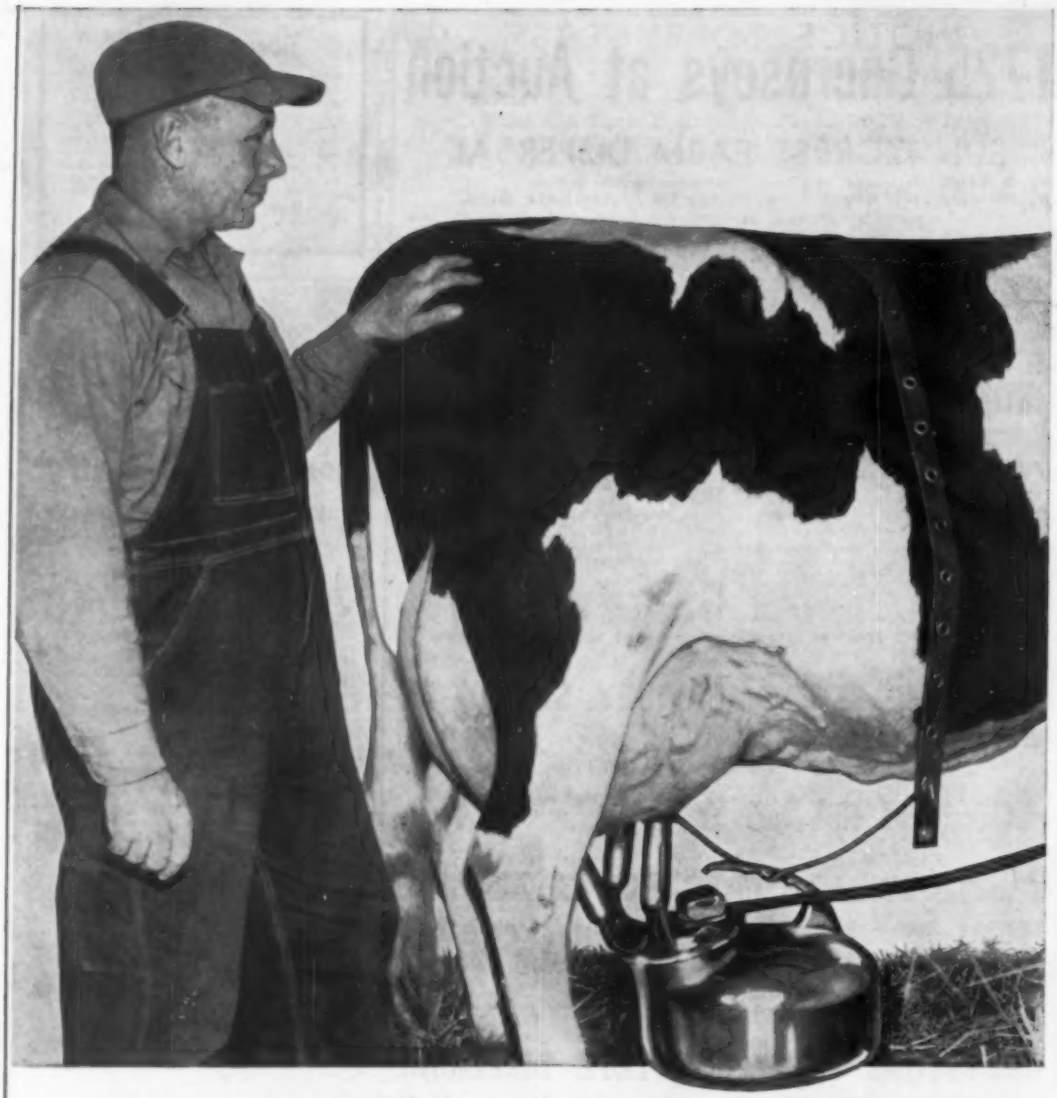
These are the cold, hard facts of present-day dairying, as seen by qualified and unbiased professional observers of farm and market trends.

These are the reasons why Holsteins make up an estimated 63% of the nation's dairy cattle population . . . produce an estimated 75% of the national milk supply.

And these, in turn, are the reasons why registered Holsteins — the genetic base of the trend of the times — are in big demand wherever profit is a factor in dairying.

The almost unlimited market for herd-improving seed stock adds up to almost unlimited opportunity for extra profit — to the man with a high-producing registered Holstein herd.

It's an opportunity worth looking into — a new profit horizon you start building toward on the day you buy your first registered Holsteins. (ADVERTISEMENT)



they're building bigger buckets for

REGISTERED HOLSTEINS

Bigger milker buckets holding over 50 pounds are being built for today's high-producing REGISTERED HOLSTEINS. Cow numbers are down 15% since 1950, but milk per cow is up more than 20%.

What's behind the trend to heavier production? Bigger Cows! Big, hungry forage eaters! Big REGISTERED HOLSTEINS!

Latest production tests show three climbing curves for REGISTERED HOLSTEINS: *1. More milk per cow. 2. More butterfat per cow. 3. More solids-not-fat per cow.*

What's more — there's still another profit crop for REGISTERED HOLSTEIN herd owners nowadays: Big purebred calves! No wonder it pays to register Holstein calves promptly and keep them registered. Sale reports show REGISTERED HOLSTEINS average $100 to $125 more than grades!

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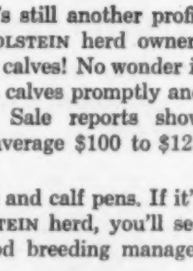
FREE! THE NEW REGISTERED HOLSTEIN GUIDEBOOK is loaded with latest dairy management information and money-making tips. For a free copy of "Big Cow . . . Big Profit," send coupon.



THE HOLSTEIN-FRIESIAN ASSOCIATION OF AMERICA, Dept. HD, Brattleboro, Vermont

Yes! Do send me a FREE copy of "Big Cow . . . Big Profit"

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Registered HOLSTEINS *Breed of the Times*

fit the farm . . . fit the market

THE HOLSTEIN-FRIESIAN ASSOCIATION OF AMERICA

BRATTLEBORO, VERMONT

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SERVICE AGE GUERNSEY BULLS

Sired by Gold Star Sires, Fritalyn Jeanette's Flash, and Blakeford Transfer. Dams backed by 15 years of continuous DHIA testing, 3 years of HIR and DHIR. Records up to 13560-696-5DHIR-305-2x, and many other good ones. Foundation cow has over 5700# fat, lifetime, still on test, classified VG 5 times. All records made under ordinary farm conditions, with machine milking and no hand stripping. Herd classified 6 times. Write for price and pedigree.

THREE CLIFFS FARM
DON FORNER CHASKA, MINN.

HOLSTEINS GUERNSEYS

Large selection of high grade cows and heifers of all ages. Calfhood vaccinated — lab. tested. We feed well balanced roughage for top production and size. Buy direct and save. Experienced insured transportation.

LAKESIDE DAIRY FARMS
Quality Cattle Since 1929
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PROMISING GUERNSEY BULL CALVES

Several youngsters sired by Dairyman F's Jado, Elmwood Dairyman Triumph or one of our junior sires. All out of good producing dams with good type. Here is your chance to get a young sire possessing bloodlines bred proven for profitable production. Priced to sell quickly.

Write for descriptions and prices, or come and pick one out.

HOARD'S DAIRYMAN FARM
FORT ATKINSON, WIS.

GRANDVU GUERNSEYS — Choice young bulls and heifers, all ages. Blue Ribbon Type, size, production breeding. From 2 great Proved high index sires. Flying Horse Masters Royal, Greenfield Music Maker. Foundation Club Calves. The right kind at the right price. Write or come to Grandvu Farms, Wrightstown, Wis.

GUERNSEYS

Waukesha County can furnish you with most any kind of Guernseys you desire—grade or pure bred. Lee Burlingham, fieldman, at your service. **Waukesha County Guernsey Breeders' Assn., Waukesha, Wisconsin.**

HOLSTEINS

INTER-COUNTY DAIRY CATTLE ASSOCIATION
118 Baxter St. Waukesha, Wis. P.O. 177
PHONE LIBERTY 7-3644

Registered and High Grade Holsteins, all ages. Experienced fieldman service or will fill orders as directed. We are in a position to handle domestic and foreign shipments of any size. Financing can be arranged. Services of **Arthur F. Bennett, James L. Gordon and Reynold Bennett.**

This month we offer Stoffell Oostie Inka Supreme, born Aug. 2, 1960. This calf's dam made 500 F as a 2-yr-old and her dam made 725 F as a 10-yr-old. The calf's dam and grandam are good producers and long life producers. His sire Stoffell Oostie Carnation Inka is siring heifers with beautiful udders. This calf will make you a profitable herd sire.

For price and pedigree write:

STOFFELL'S MILK FARM
Route 12 Knoxville, Tennessee

Is your subscription running out? Renew now! Five full years only $3.

REGISTERED HOLSTEIN BULLS

Ready for service. Sired by Wis Reward "The bull with the golden pedigree," and out of our "Good Plus" and "Very Good" cows with good records. Also have a large selection of younger bulls. Our prices are very reasonable as we must keep our bulls sold. See our herd of 900 registered Holsteins and ultra-modern milking unit. Visitors are always welcome.

GREEN MEADOW FARMS Elsie, Michigan

ART CAMENZIND'S DAIRY CATTLE

200 to 300 head of quality springing Holstein and Guernsey heifers and young cows, year around. Picked for production, type and clean well formed udders. Herds bought and sold. Satisfied cutomers, lifetime experience. All cattle are well fed and cared for. Mostly calfhood vaccinated and all are tested. Springing heifers shipped on approval, or cattle may be seen anytime. Two miles northwest of

Irvington, Nebraska
ON HIGHWAY 133
PHONE OMAHA, 393-2120

PRODUCTION AND TYPE HERD SIRE

We offer this month a very typy young bull born March 30, 1960. He is well marked with very good type. The dam is ci. VG with a 4-yr-old record of 18395 M and 675 F. The sire is a 601# son of a VG dam. He is sired by the EX and GM Pabst Sir Roburke Rag Apple. This young bull is bred for a lot of production and type. For more information call or write to Carl W. Medsker, phones 2-3319 or 2-3087 Graysville, Indiana.

MEDSKER FARMS SULLIVAN, INDIANA

FRASEA IDEAL PILOT
"Very Good" Gold Medal Sire

OFFERING A PILOT SON FROM A "VERY GOOD" BUTTER BOY DAUGHTER

The first seven Carnation bred daughters of Pilot have now completed Jr 2-yr-old 2x records. The actual average is 13,745 M 542 F 4.0%. These are under loose housing-milking parlor conditions.

Twelve Carnation bred daughters have been classified for type, all as first calf 2-yr-olds. They average 83.9 points with 5 VG and 7 GP. Five are now fresh with second calf. They show tremendous improvement and development over their 2-yr-old form.

The Pilot daughters out of Butter Boy daughters are especially outstanding. That is why we can recommend the calf Ear Tag B-633 born Oct. 1, 1960.

His dam is a VG Butter Boy daughter now on test as a 5-yr-old with 9,709 M 426.3 F in the first 120 days. Her dam is a VG (88 points) daughter of EX and GM Hallrose Progressor with records up to 29,954 M 1,105 F. The next dam is a VG daughter of Carnation Chieftain from a top cow family.

A full brother to the dam of this calf is an outstanding proven sire.

Complete information and price gladly supplied. Write, wire or phone.

Carnation Milk Farm

Address: CARNATION MILK FARMS
Dept. #201
Carnation, Washington

TRI-COUNTY HOLSTEIN ASSN., Watertown, Wis., Box 143. We fill orders efficiently for both Registered and Grade Holsteins. We furnish field service for selecting your animals. Fifty years in business—we aim to satisfy. Can furnish references. **Francis Darcey and Sons** — N. on Hy. 26 — 7 miles.

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Serving the Dairy Industry for over 50 years

GILSON BROS.
ED AND ANSEL GILSON
GREENLEAF, WISCONSIN

Registered & Grade Springing Cows, Springing Heifers, Open Heifers. Fieldman Service, Order Buying a Specialty. Dairy Sale of 100 Holstein cows and heifers the last Thursday of each month starting April 27 at 2:00 p.m.

Write or phone Wrightstown 532-6622 for prices.

NORTHERN DAIRY CATTLE DIRECT FROM FARMER BREEDERS

T.B. & Bang's accredited county. Fieldmen sales & service, or orders filled. For information write, call, or wire **Barron Co. Coop. Dairy Cattle Sales Ass'n**, Barron, Wis. Glen L. Krahenbuhl, Mgr. Ph: Lennox 7-3202.

HOLSTEIN DAIRY CATTLE — Registered and Grade cows, heifers of all ages. TB and Bang's tested, calfhood vaccinated. Write or call for free price list. Fieldman service or will fill orders at your direction. **GEORGE PIPER, Watertown, Wis., Phone 2912-W.**

JEFFERSON COUNTY HOLSTEIN BREEDERS' ASSOCIATION

REGISTERED and GRADE HOLSTEINS

available from top DHIA accredited herds, many using artificial breeding. Heifers at all ages, good young cows. Financing Available.

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Best selection from one of the world's largest dairy counties. Over 15,000 cattle are on DHIA test and more than 40,000 bred artificially from some of the top proven bulls. Fieldman sales and service. For information write: Frank E. Cairns, Fieldman, City County Bldg., Madison 9, Wis. Tel. ALpine 6-0513 or CEdar 3-5538. **DANE COUNTY HOLSTEIN BREEDERS CO-OP ASSOC. Madison, Wis.**

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REGISTERED AND GRADES

Select foundation Holstein Cows and Heifers with Production, type, and size from our Foundation Wisconsin Herds. Artificial Breeding. Calfhood Vaccinated, Bangs and T.B. Tested.

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Arrangements have been made with the Dairy Credit Co., DeKalb, Illinois to finance acceptable purchases. Only a down payment is needed and the balance on monthly installments. "The cows will pay for themselves as they produce." For more information about financing call or write Dairy Credit Co., 112 East Locust Street, DeKalb, Illinois Phone 6-4811.

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Over 100 head quality-selected bred heifers, grade and registered, from dams having 450 F to 750 F; to freshen from April 1, through September.

Offering includes daughters of Pabst Sir Comet Oliver, Wis Captain, Kanawha King Pooch Neptune, Carnation Profile, Pabst Sir Roburke Rag Apple, and many others. Also a few select young bulls.

Offered for private, on-the-farm, sale. Send for catalog.

VETERINARY COLUMN

E. A. WOELFFER, D.V.M.

The pulse

The pulse is the rhythmic expansion and contraction of an artery. The pulsations are caused by additional blood pumped into the arterial system with each beat of the heart. The production of the pulse may be described as follows:

When the ventrical of the heart contracts, blood is forced into an already full aorta (large artery from the heart). Since blood is incompressible, room must be made for the newly-discharged quantity.

A combination of the distention of the arterial walls and the movement of the blood constitutes the pulse wave. The more rigid the artery, the faster the pulse wave travels, whereas the more elastic the artery, the slower it travels.

Rate varies . . .

As a rule, small animals have a faster heart rate (pulse) than large animals. A small dog, for example, may have a heart rate of 120 beats per minute, whereas a large dog may show a rate of only 80 or less. The rate of the mouse is about 600 beats per minute, while that of the elephant is 30 to 45. The horse has 36 to 40 beats per minute, the cow 45 to 50, and the sheep and pig 70 to 80.

The pulse may be felt with the finger in many of the superficial arteries, the ones most accessible (varying in the different species).

In the horse, the external maxillary artery (located near the angle of the lower jaw) is most commonly used by veterinarians to ascertain pulse. In the cow, this same artery or the saphenous is used.

In the sheep, dog, and cat, the femoral artery is most accessible. Palpation of the pulse in the pig is difficult or impossible. When the heart beat cannot be measured by the pulse, oscillation over the heart region is made.

Valuable information about the heart and circulation of blood may be learned. The information is valuable in diagnosing disease, heart failure, or deficiency.

TREATING FOR WORMS

I had a herd of 43 calves until I started losing some — 8 between the ages of 9 and 13 months in a 3-week period.

We had quite a long rainy spell, and that is when it started. They would develop knots under their neck and then get down. Some of them ate good, but had loose bowels. They would live from 2 days to 2½ weeks before dying.

The state veterinarian who vaccinates my calves for Bang's said they had stomach worms and during the rainy season would get worse. They eat good but don't seem to gain weight like they should. Also their hair is ruffled instead of being sleek and shiny.

If you also think it is worms, what would be the best way to worm them?

Yulee, Fla. J.W.W.

From the brief symptoms you describe and based on the tentative diagnosis by your state veterinarian, I would certainly suspect worms as a likely cause. However, I believe you should have a definite diagnosis from your practicing veterinarian. He will also be in a position to recommend preventive measures and treatment.

If roundworms are involved, phenothiazine is the generally accepted treatment. The type of worms present can be determined by examining the feces under a microscope.

WATER ON THE KNEE

One of the most valuable cows in our barn has water on the knee. Would I be able to relieve the condition by drawing out the fluid with a syringe and then taping up the joint?

I have received this same treatment myself and have been wondering why I couldn't expect the same results with the cow.

North Stonington, Conn. C.E.R.

Under certain conditions one would expect to obtain relatively successful results by aspirating the fluid from a swollen knee and injecting antibiotics and cortone acetate or similar products and then binding it as you indicated.

However, the situations are not always the same. If this is a valuable cow, I suggest you contact your veterinarian for a diagnosis and treatment. Unless one knows what he is doing, considerable harm can result from such treatment.

SILENT HEATS

I have a herd of registered Milking Shorthorns with which I am having breeding trouble.

My cows have silent heats. They cause no disturbance in the barn or outside. They will stand if the bull finds them when they are out. But up in this cold country, I can't get them out every day.

I am feeding good corn silage and good alfalfa hay with some grain, soybean meal, and mineral.

Pelican Rapids, Minn. D.L.J.

Usually only a small percentage of cows in a herd fail to show heat or exhibit silent heats. Cows kept in the barn and turned out only once a day should be carefully watched for at least 15 minutes for any signs of heat.

Also, it is important to keep accurate records of heat and breeding dates. This helps to establish a pattern and pinpoints the cows to be watched. Have your veterinarian examine the herd periodically. By herd, I mean cows that have been bred 30 to 60 days and cows that fail to show heats over 60 days after freshening.

RISE IN BUTTERFAT CONTENT

Does the high butterfat a cow is giving cause ketosis, or does ketosis cause a cow to give high butterfat milk?

I have tested milk from two different cows and found that when they are ill, butterfat content was almost twice as high as when the cows were not sick.

Ghent, Minnesota R.D.

Thank you for your observations. When milk production drops, due to disease or stress, butterfat percentages usually rise. The amount of rise will vary with individuals.

When animal skin is injured, reach for soothing

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Dehorning	Open Insect Bites
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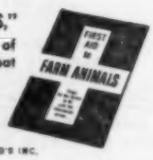

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Fertilizer is your best investment

Cut feed costs by topdressing your pasture early this Spring

THE part of your milk check that winds up as profit in your pocket depends mainly on how much money you've got to pay out for purchased feeds. Realizing this, cost-conscious dairymen will produce more of their cows' feed intake from pastures by topdressing early this Spring with high-quality AGRICO fertilizer. These 7 reasons show why topdressing pastures makes good sense:

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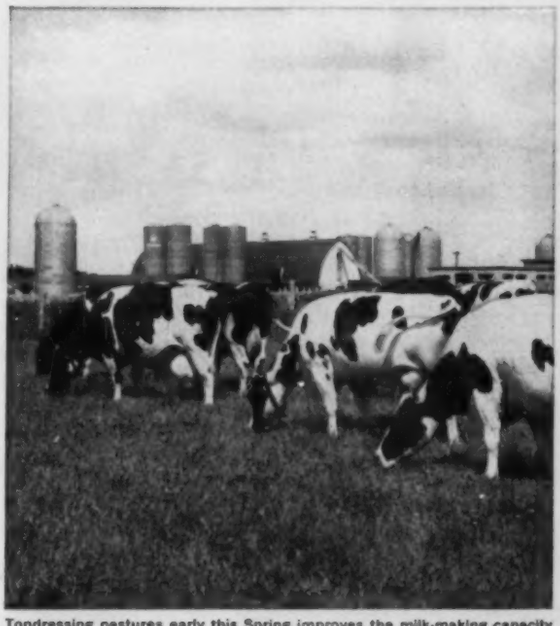
2. **Gives 7 to 10 days of earlier grazing.**
3. **Extends the lush grazing season into late July.**
4. **Dense growth of fertilized pastures will choke out many weeds, reduce grub damage.**
5. **Healthy pastures increase the water-holding capacity of soil and slow down water runoff.**
6. **More acres of good pasture cut manhour and machinery costs because cows harvest more of their own feed.**
7. **Helps legumes and other plants recover faster and healthier from any Winter setback.**

Bulk spreading service is available through your nearby Agrico agent. See him soon.



Topdressing pastures early this Spring improves the milk-making capacity of your pastures . . . lets you reduce your purchased feed costs.

Follow The Agrico Program of pasture management by using the right rates and analysis. A trained Agrico fieldman will take soil samples, note pasture history, condition of stand, type of pasture and cows grazed. Agrico agronomists then analyze your soil and make recommendations to fit your particular pasture program. Why take chances with a hit-or-miss fertilizer program when you can follow one that's tailored to fit your personal dairy operation. There's no cost or obligation.

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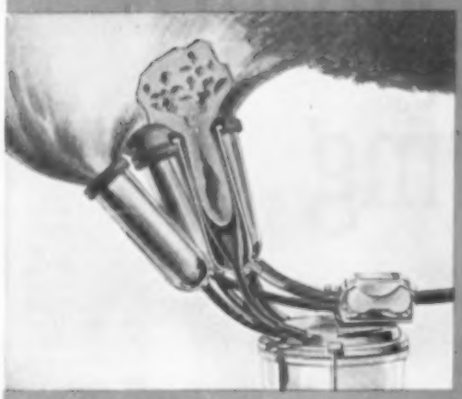
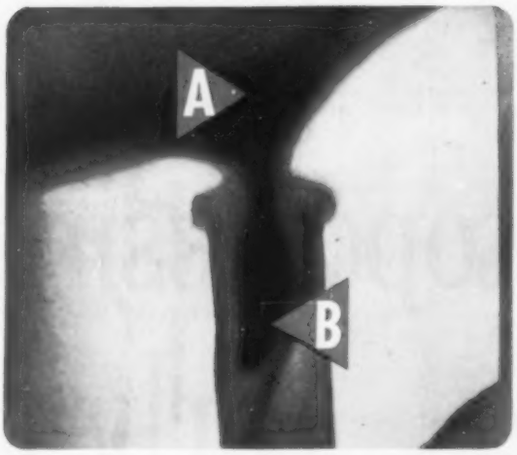
Caught in the act!

NEW X-RAY MOVIE PROVES TEAT DAMAGE WHEN TEAT CUPS ARE LEFT ON TOO LONG

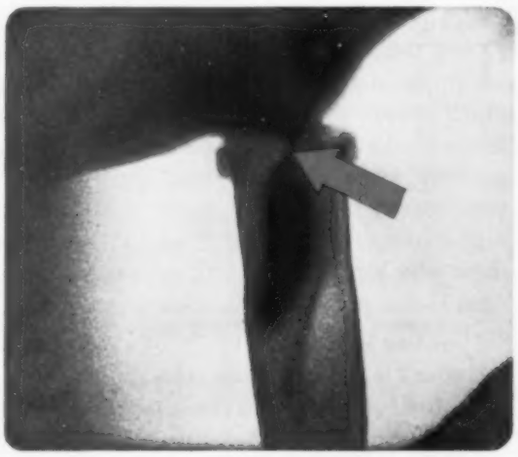


A major cause of mastitis is the irritation of teats caused by failure to remove each teat cup as the quarter is milked out. This damage to teat tissues is documented in a dramatic new motion picture — filmed partly in X-ray.

Ask your Surge dealer to show you this unusual film —"A Reminder to Dairymen" — produced by the Babson Bros. Co. in the interest of good cow milking. Your Surge dealer welcomes group showings — 4H, FFA, and others. No obligation, of course.



Correct milking. (A) is the bottom of the gland cistern . . . black area (B) the teat cistern. Passageway between two cisterns is open — allowing vacuum to remove milk without injury.



Dry quarter. Passage closes, causing tissues (arrow) between two cisterns to rub tightly together. Since quarter is empty, milk no longer acts as a cushion, protecting inner surfaces against damage.

HERE'S WHY DR. TURNER SAYS:

"Remove teat cups as each quarter is milked out."

By Dr. C. W. Turner, Professor of Dairy Husbandry, University of Missouri

In machine milking, the milk is removed by vacuum acting on the end and side of teat. When the cow has let down her milk, its removal by this process is pleasurable. However, as soon as all the available milk is removed from each quarter, the vacuum acting on the teat causes discomfort to the cow . . . and injury to the delicate tissue lining the teat and milk cistern of each quarter. *The irritation and traumatic injury to the delicate tissues of the gland is a common predisposing cause of mastitis.* The incidence of mastitis has been reduced markedly by rapid milking and by removing the machine as soon as the milk has been removed.

Yet Mastitis Still Occurs! What Can Be Done?

Milkers frequently neglect the fact that the milk produced by the four quarters is unequal. Usually the fore quarters produce only 40 percent of the milk. The fore quarters are thus milked out one to three or more minutes faster than the average rear quarters. Occasionally it is a "light" rear quarter that milks out faster.

With unequal milking time of the quarters, the fact remains that the faster milking quarters are subject to *irritation and trauma of the vacuum for periods of from one to three or four minutes if the machine is left on until all quarters are dry.*

Reduce this cause of mastitis! Improve your machine milking by this rule. *Don't wait until all four quarters are milked out! Remove each teat cup as the quarter is milked out.*

Following this additional rule of better milking will result, first, in further reducing the incidence of traumatic-caused mastitis.

Second, it will increase milk yield by obtaining more milk from the more productive quarters which take more time to milk out.

Vacuum acting on the quarters which are milked out is painful to the cow, and induces the secretion of the bad hormone which causes cows to "hold up" more of the last milk rich in fat.

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SURGE

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